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COMMENTARY GUIDE FOR COLOR SLIDES

TIMBER RESOURCE REVIEW

Property of
U. S. Forest Service
Rocky Mountain Forest and Range
Experiment Station

FOREST SERVICE
U. S. DEPARTMENT OF AGRICULTURE

AUGUST 1958

COMMENTARY GUIDE FOR COLOR SLIDES
TIMBER RESOURCE REVIEW
FOREST SERVICE
U. S. DEPARTMENT OF AGRICULTURE

(Based on Separate No. 1 - A Summary of the Timber Resource Review, TIMBER RESOURCES FOR AMERICA'S FUTURE, Forest Resource Report No. 14, Forest Service, U.S.D.A., January 1958.)

The Timber Resource Review was the most comprehensive study of the national timber situation ever made. It was carried on by the Forest Service, U. S. Department of Agriculture, in collaboration with State forestry departments and the forest industries. The report concerns only the timber resource of our forest lands and makes no appraisal of the many other values of those lands.

TIMBER RESOURCES FOR AMERICA'S FUTURE reports on our current timber situation and takes a look at future timber needs and supplies. It is the basis for future action to make certain that our forest lands will supply those needs.

Local Notes:

POPULATION & GROSS NATIONAL PRODUCT

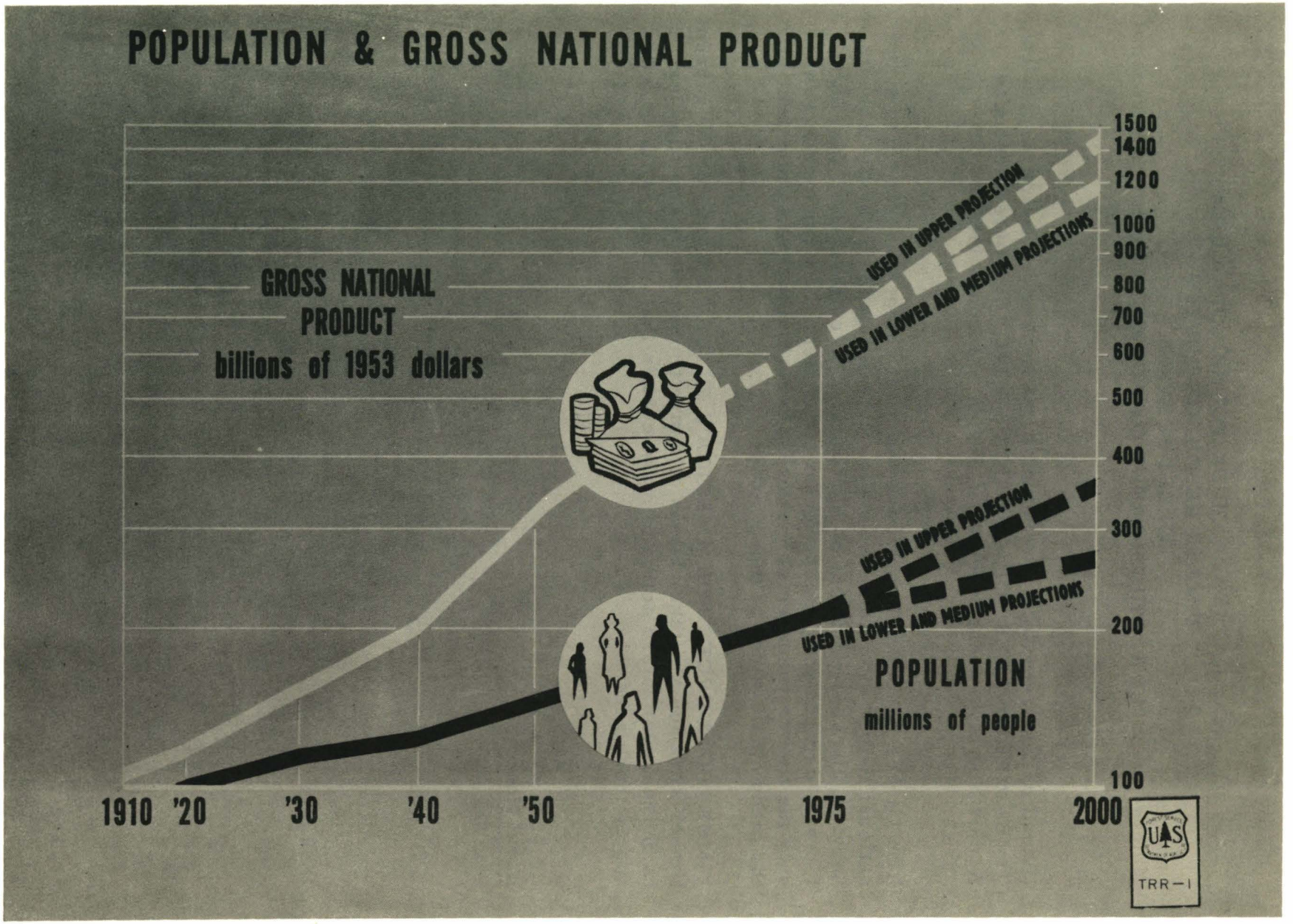

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Chart TRR - 1, Population and Gross National Product

Timber products consumption is directly related to the national economy -- the population and the goods and services which that population produces.

For the first half of this century, both the population and the gross national product -- those goods and services --. have been steadily and rapidly increasing. However, there has been a distinct divergence between the two -- goods and services (the top lines) have increased at a greater rate than has population (the bottom lines). As a result our standard of living has improved. If the two lines should change direction and come closer together, the standard of living would deteriorate for the simple reason that there would be less "goods and services" per person.

In 1957, the United States had 170 million people and a "gross national product" (goods and services) of more than 400 billion dollars. Bureau of the Census median estimates of 1952 contemplate 215 million people by 1975 and we can expect over 600 billion dollars of gross national product in that year.

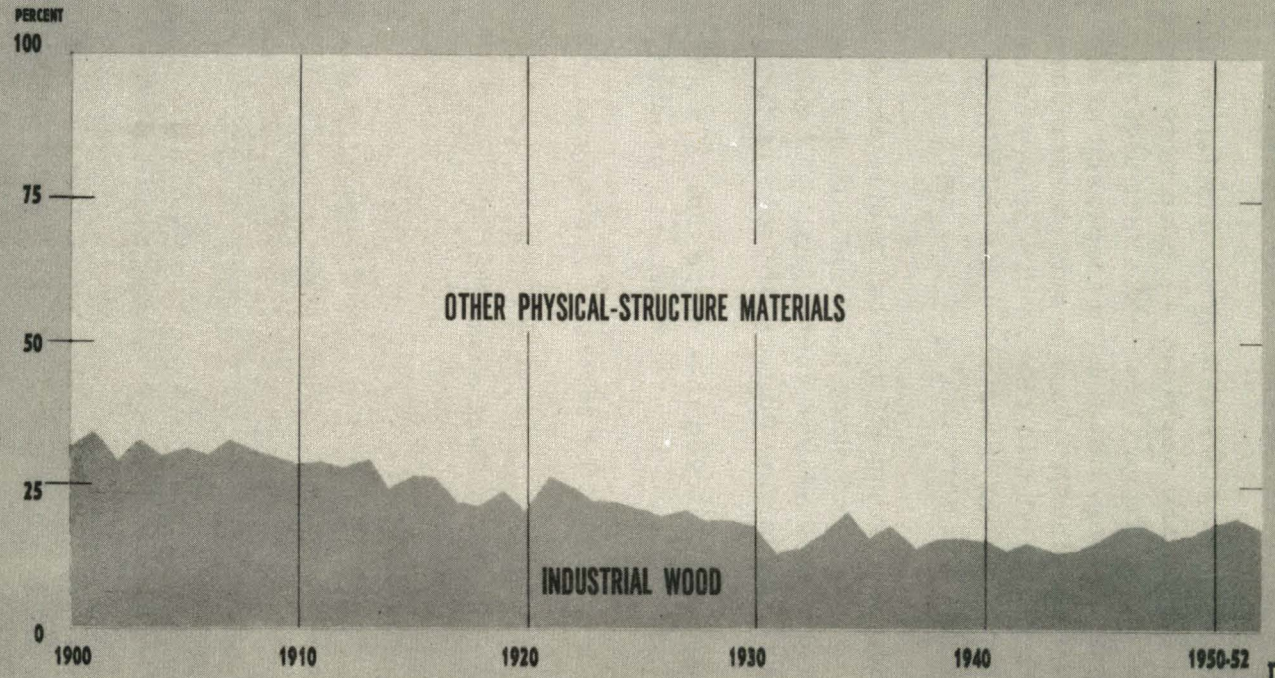
By the year 2000, it is believed that more than 275 million Americans will produce 1,200 billion dollars in gross national product.

The economy -- now and in the future -- looks good. What does the timber situation look like?

(See pages 7-9 and Fact Sheet No. 4)

Local Notes:

WOOD IS 1/5 OF PHYSICAL-STRUCTURE MATERIALS



SOURCE: Bureau of the Census, RAW MATERIALS IN THE UNITED STATES ECONOMY, 1900-1952, Washington, D. C., 1954.

TRR-2

Chart TRR - 2, Wood Is 1/5 of Physical Structure Materials

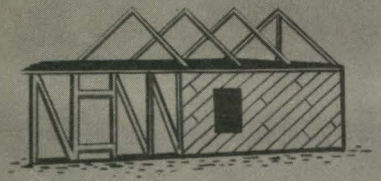
There are three kinds of basic raw materials -- food, energy materials, and "physical structure raw materials." Except for fuelwood, which is classed as an energy material, timber products are part of those "physical structure raw materials." But don't let that mouthful of words confuse you -- it simply means the stuff from which things are made -- wood, cotton, wool, concrete, steel, minerals, and other raw materials.

Take a good look at this chart. It is a history of how consumption of industrial wood (all wood except fuel) compares with consumption of other raw materials used in manufacture and building. In 1900 industrial wood made up about 30 percent of all such raw materials. By the mid 1930's this proportion had dropped to a low point of around 16 percent. It remained at this level for a decade or more. Then during the past decade the proportion increased, reaching 19 percent in 1952. Thus the long time trend in the use of industrial wood relative to the use of other raw materials shows a decline, a period of stabilization, and a recent increase. Better technology, and growing use of the newer products are mainly responsible.

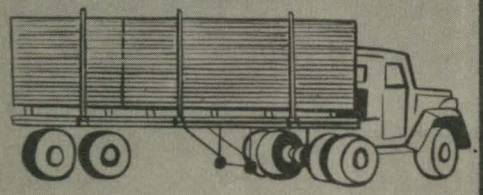
(See pages 9-10 and Fact Sheets 4 & 9)

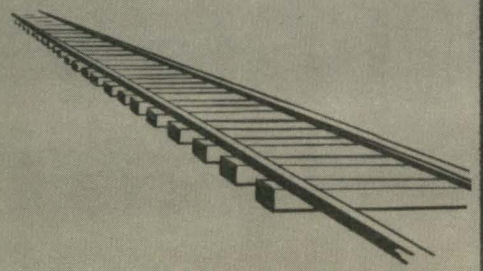
Local Notes:

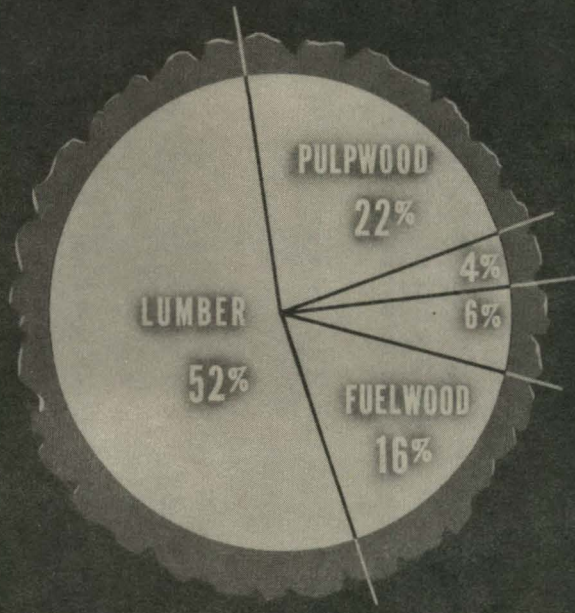
CONSUMPTION OF TIMBER PRODUCTS - 1952



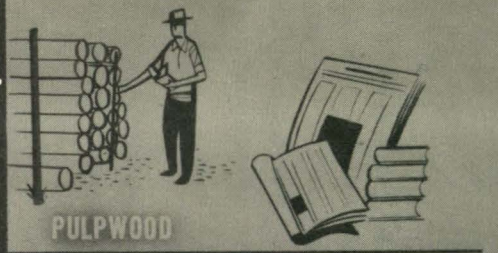
LUMBER



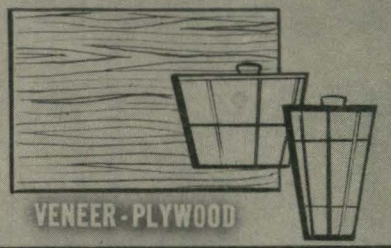




TOTAL - 12.3 billion cubic feet

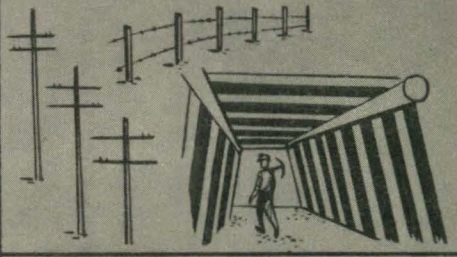


PULPWOOD



VENEER - PLYWOOD

OTHER PRODUCTS



FUELWOOD

TRR-3

Chart TRR - 3, Consumption of Timber Products - 1952
Total - 12.3 Billion Cubic Feet

Here is illustrated the consumption of timber products in the United States in 1952. Lumber makes up more than one-half of the total, pulpwood 22 percent and fuelwood is third with 16 percent. The rapidly growing use of plywood and veneer raised consumption of these products to 4 percent by 1952. Miscellaneous other products accounted for 6 percent.

Per capita consumption of pulpwood has tripled since 1920. Actual consumption of pulpwood was five times greater in 1955 than in 1920. Pulpwood is the principal reason wood maintains about the same proportion (20 percent) of the total mix of physical structure raw materials in 1952 as it did in 1925-40.

In contrast, total consumption of lumber has not shown such a sharp rise and per capita consumption dropped from 325 board feet in 1920 to 264 board feet in 1952 and down to 248 in 1955. Fuelwood consumption had dropped rapidly both as to total use and per capita consumption and in all probability will continue this trend.

(See pages 12-15 and note particularly the factors which influence timber products consumption. See Fact Sheet No. 9 also.)

Local Notes:

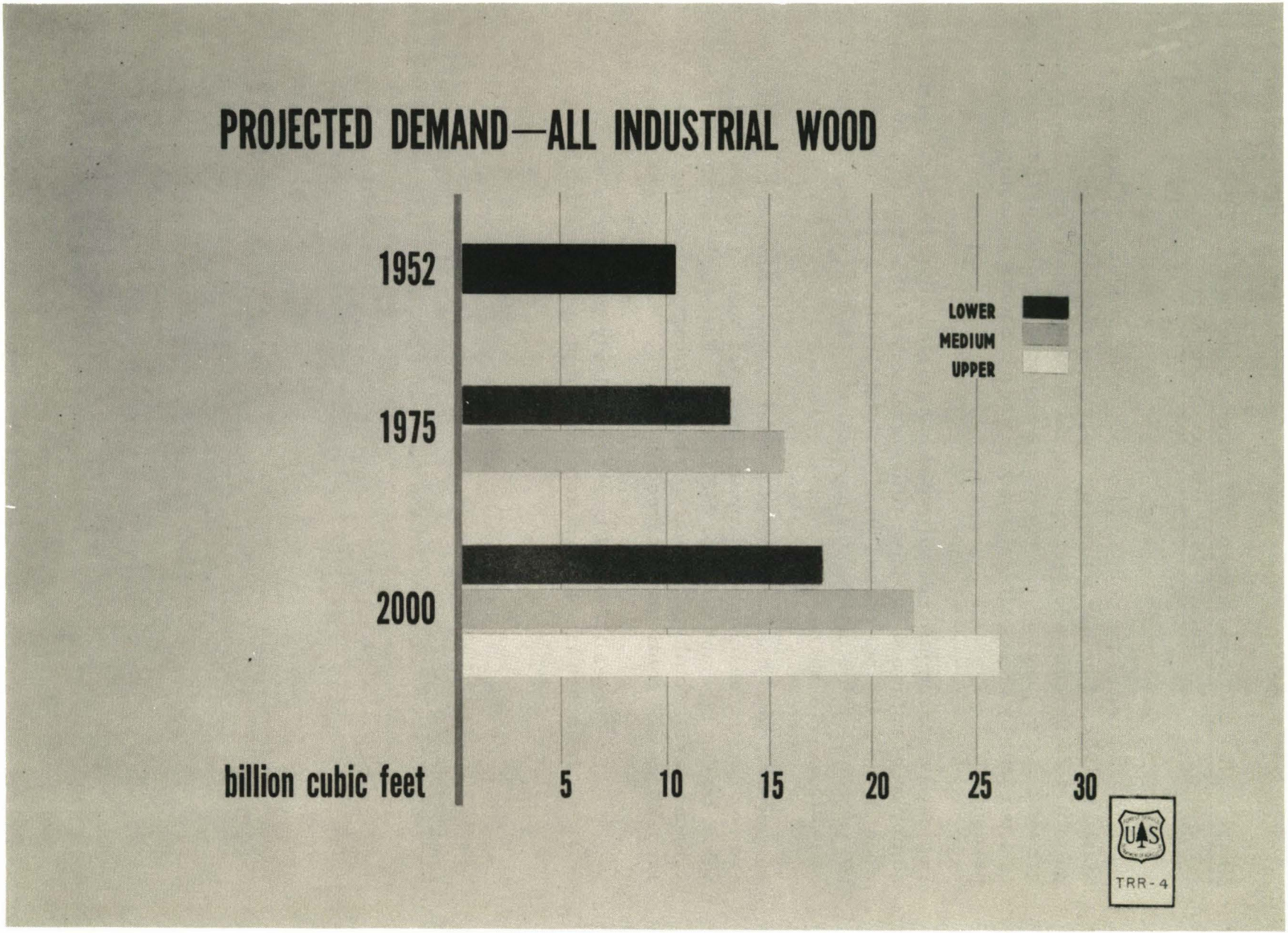

PROJECTED DEMAND—ALL INDUSTRIAL WOOD
1952
1975
2000
LOWER
MEDIUM
UPPER
billion cubic feet
5
10
15
20
25
30
TRR-4

Chart TRR - 4, Projected Demand - All Industrial Wood

At either lower, medium or upper level, the projected demand for all industrial wood (that excludes fuelwood) is higher than in 1952. At the medium level, the 1975 demand will be 50 percent greater than 1952, the year 2000 demand 114 percent greater.

The lower projection for all industrial wood shows a declining per capita consumption. This would be expected in view of the price assumption (price higher than that of competing materials) for that projection. Both the medium and upper projected demand for industrial wood show increased per capita demand over 1952.

At each level, per capita demand for lumber declines to 1975. Except for the medium level, the decline continues to 2000. The per capita demand for pulpwood, however, increases at all levels to both 1975 and 2000.

Even though per capita demand for lumber continues to decrease to 1975 and 2000, total demand then will be greater than in 1952 because of increased population. At the medium level, lumber demand will be about double 1952 consumption. Pulpwood demand will be more than three times greater than the amount consumed in 1952.

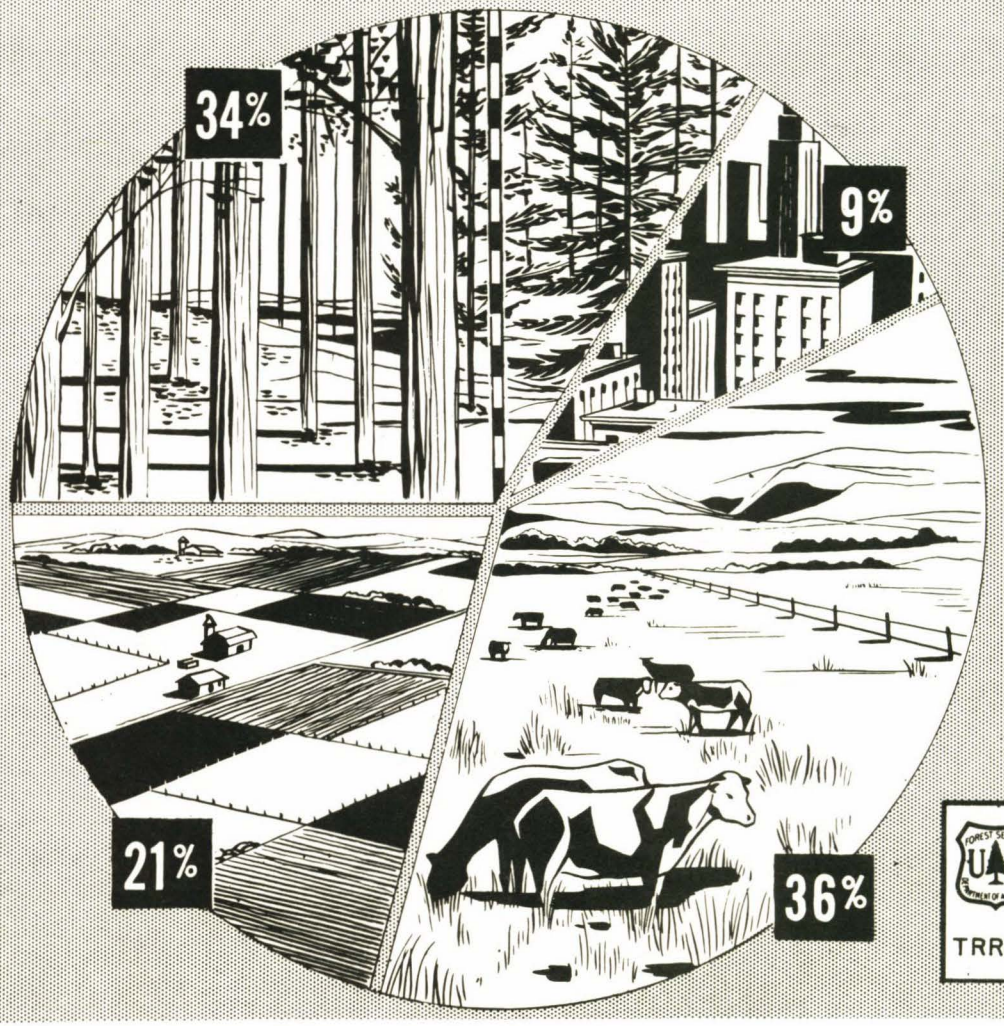
(See pages 15-21 and Fact Sheet No. 4)

Local Notes:

USE OF OUR LAND

U.S. & COASTAL ALASKA

1. FOREST LAND 34%
   - COMMERCIAL 25%
   - NON-COMMERCIAL 9%
2. CROPLAND 21%
3. PASTURE-RANGE 36%
4. OTHER 9%



TRR-5

Chart TRR - 5, Use of Our Land, U. S., and Coastal Alaska

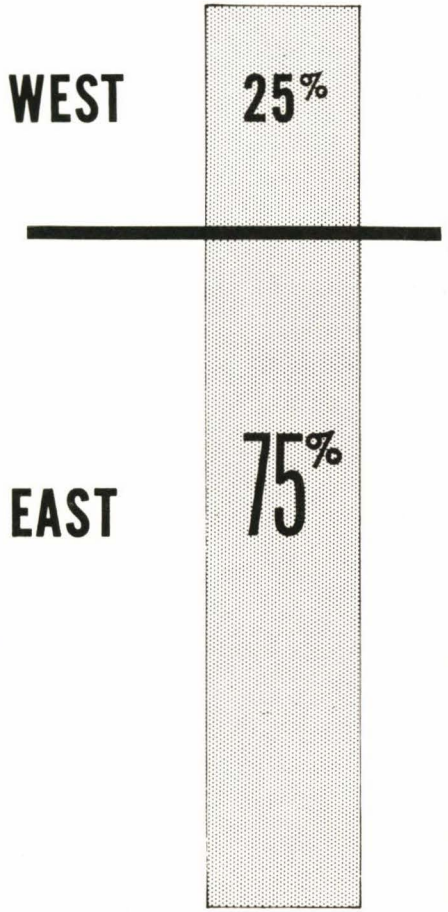
Forest land -- both commercial and noncommercial -- amounts to 664 million acres, one-third of the total land area of the United States. One-fourth of the total land area is commercial forest land, the land to which the United States looks for its timber supplies. There are 489 million acres of commercial forest land in the United States and Coastal Alaska. Nine percent -- 164 million acres -- of the land area is non-commercial forest land -- land which is not suitable or not available for growing commercial timber crops. However, much of it is valuable for watersheds, livestock grazing, wildlife, and recreational use.

Take a good look at that 9 percent of our land area occupied by cities, reservoirs, highways, railroads, etc. That will no doubt increase considerably as populations increase. The additional land going into such uses will be taken out of land now used for other purposes. In view of this, it appears that the long-term trend and pressures will be in the direction of less land for commercial forestry purposes.

(See pages 27, 28, and 36 and Fact Sheet No. 5)

Local Notes:

DISTRIBUTION OF COMMERCIAL FOREST LAND



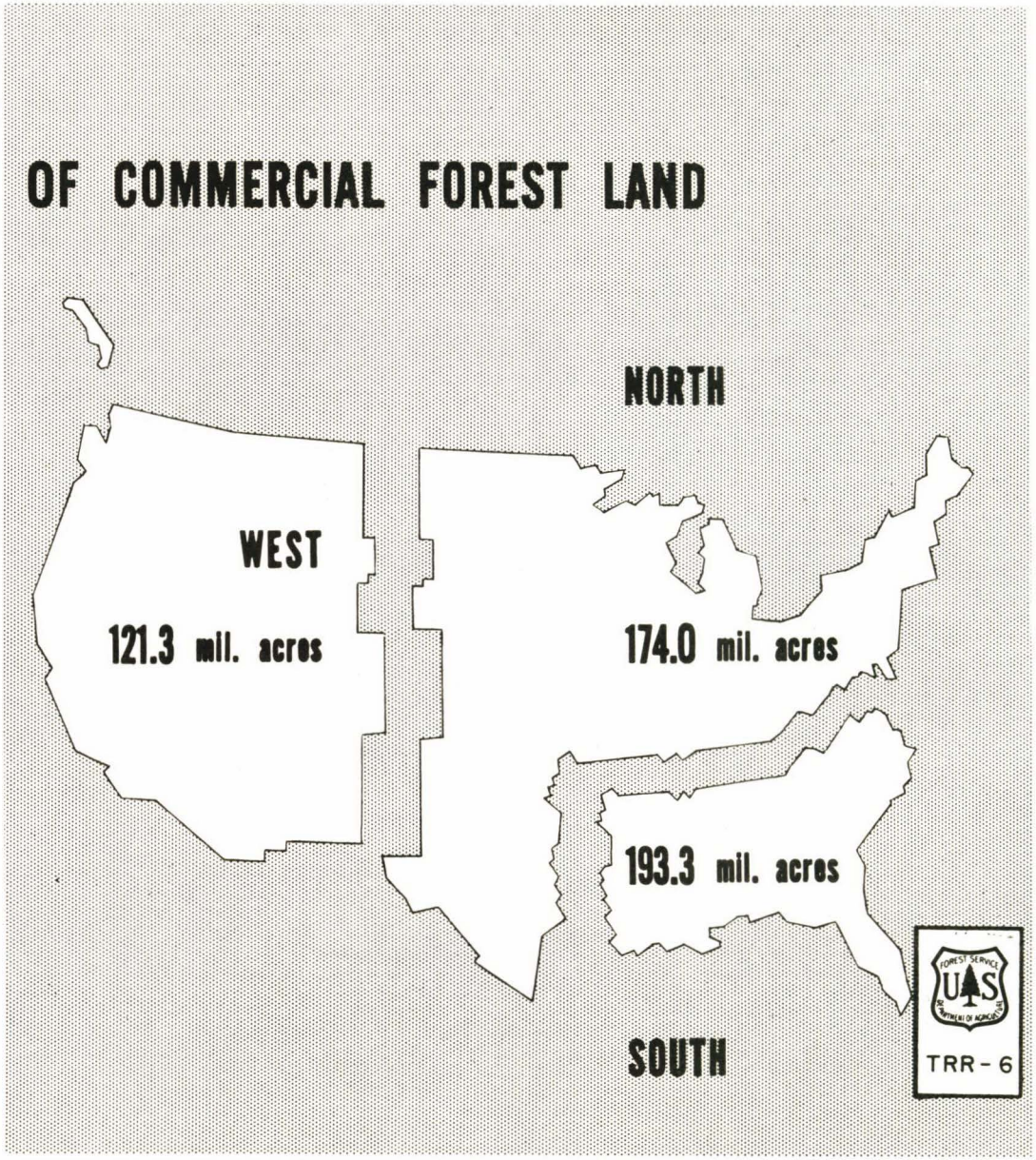


Chart TRR - 6, Distribution of Commercial Forest Land

Not many people realize that most -- in fact, three-quarters -- of our commercial forest land lies in the East. This chart shows the breakdown. Note that the South has the most with the North a close second. Where most of our forest land is located is where we will eventually grow most of our timber.

In grouping regions into sections, the entire Plains Region including western Texas and Oklahoma is placed in the North. This is done because about 80 percent of both the commercial forest area and timber volumes in the Plains Region lies north of the Oklahoma-Kansas line.

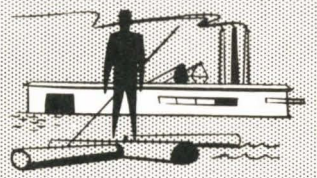
(See page 28 and Fact Sheet No. 5)

Local Notes:

OWNERSHIP COMMERCIAL FOREST LAND

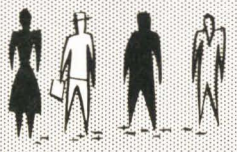
FEDERAL . . . 21% — 27% — 103.1 MIL. ACRES

STATE·LOCAL . . 6% — 27.2 MIL. ACRES



FOREST INDUSTRIES . . 13% — 62.4 MIL. ACRES

FARM . . . . . 34% — 73% — 165.2 MIL. ACRES



OTHER . . . . . 26% — 130.7 MIL. ACRES

TRR-7

Chart TRR - 7, Ownership Commercial Forest Land

The condition and use of forest land and timber depends largely upon the people who own private timberlands and the agencies that administer public lands.

Most forest land in the United States is privately owned. More than one-half of all commercial forest land is in small private holdings on farms and in other ownerships. Forest industries own 13 percent of the commercial forest land. Altogether private ownership accounts for 73 percent -- almost three-quarters -- of the forest land. The remainder, 27 percent, is in public ownership.

(See pages 30-32 and Fact Sheet No. 6)

Local Notes:

OWNERSHIP of PRIVATE COMMERCIAL FOREST LAND

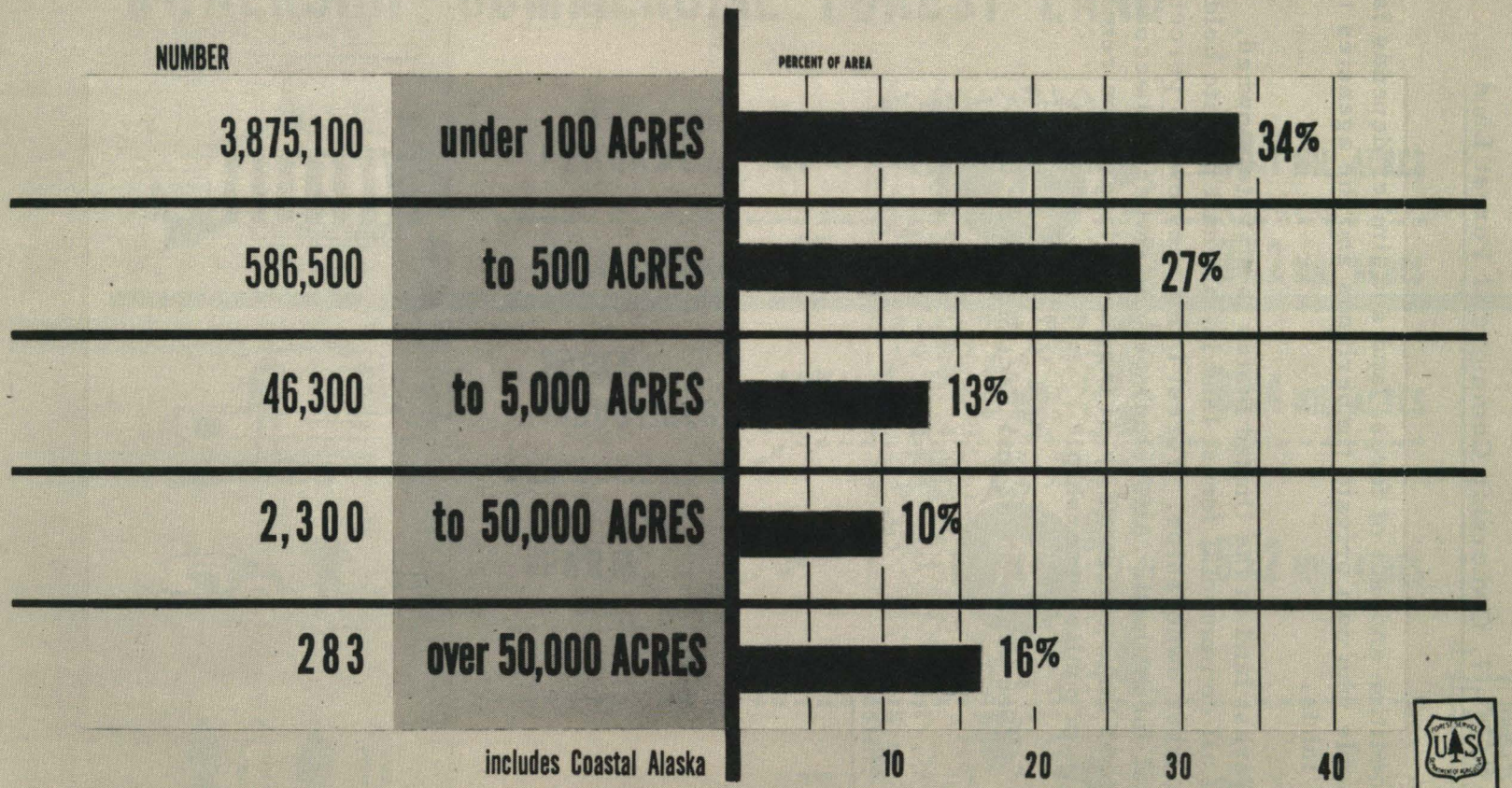


Chart TRR - 8, Ownership of Private Commercial Forest Land

Seventy-four percent of privately-owned commercial forest land is in four and one-half million different ownerships of less than 5,000 acres each. These are only about 2,580 ownerships over 5,000 acres in size.

(See pages 30-32 and Fact Sheets 6 & 7)

Local Notes:

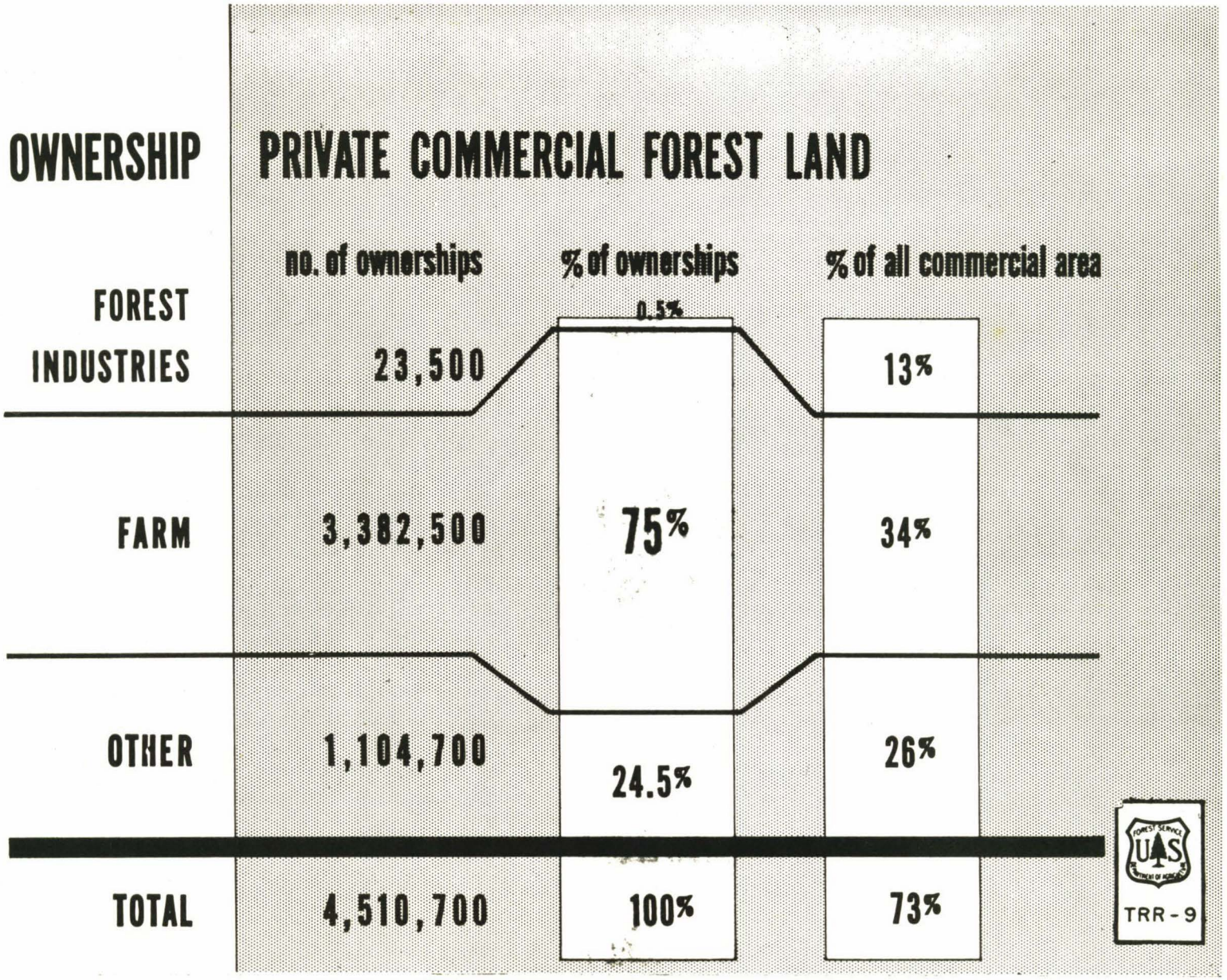

OWNERSHIP
PRIVATE COMMERCIAL FOREST LAND
no. of ownerships
% of ownerships
% of all commercial area
FOREST INDUSTRIES
23,500
0.5%
13%
FARM
3,382,500
75%
34%
OTHER
1,104,700
24.5%
26%
TOTAL
4,510,700
100%
73%
TRR-9

Chart TRR - 9, Ownership of Private Commercial Forest Land

Here's another breakdown showing how our private forest land is owned. There are over four and one-half million holdings. (No one knows how many people own these tracts.) If we take away the 23,500 forest industry ownerships and the larger ownerships other than the forest industries, there are still almost four and one-half million small ownerships.

Timberlands on farms account for three-quarters of all private ownerships or one-third of all commercial forest land.

(See pages 30-32 and Fact Sheet No. 6)

Local Notes:

¼ OF COMMERCIAL FOREST LAND POORLY STOCKED

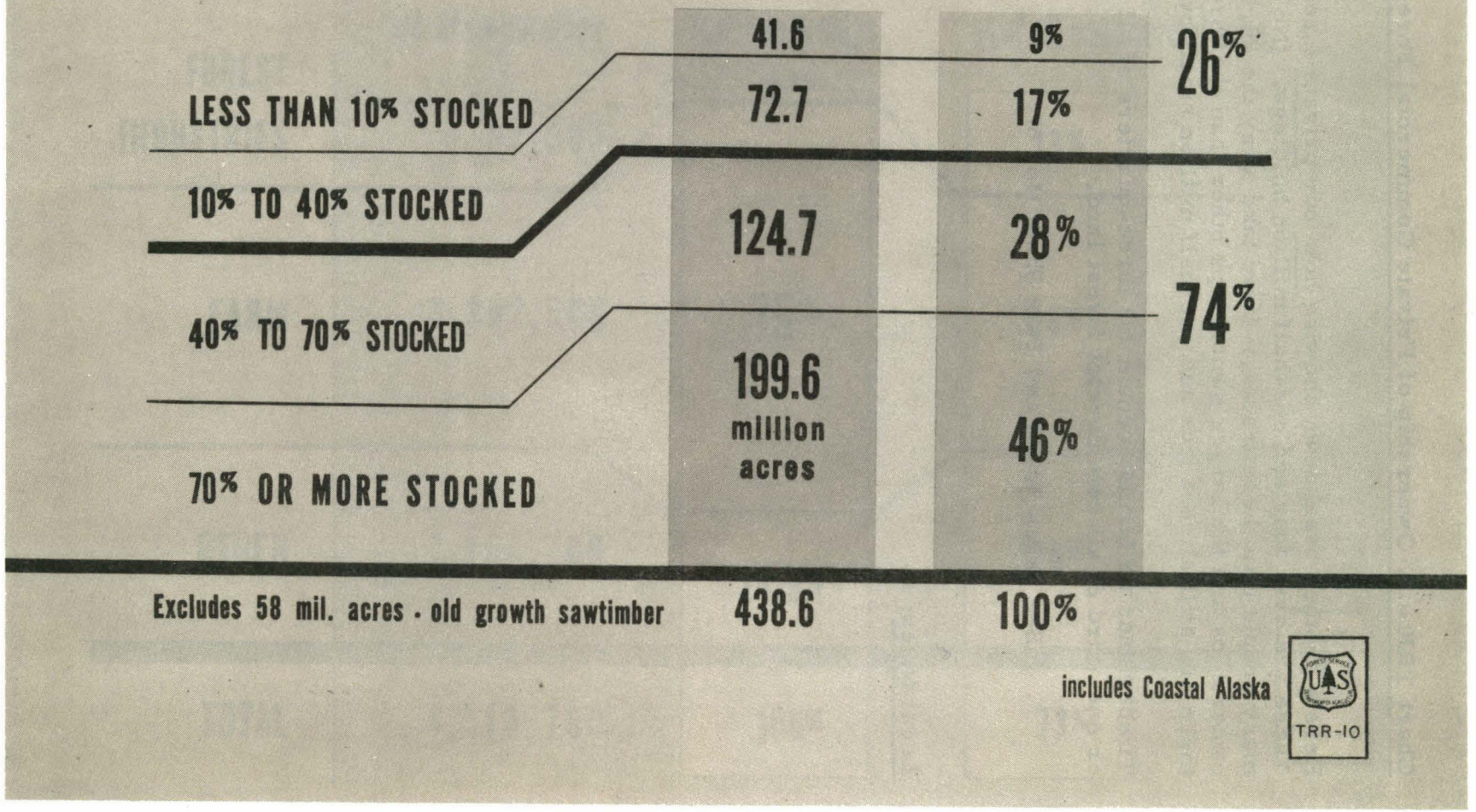


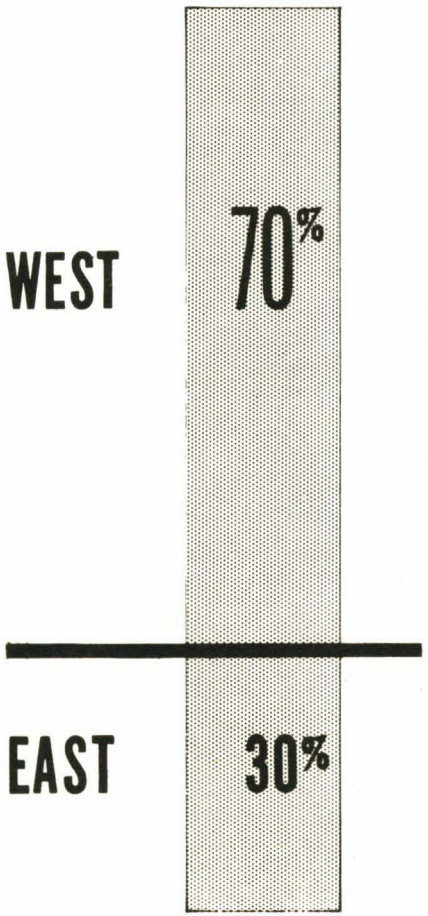
Chart TRR - 10, 1/4 of Commercial Forest Land Poorly Stocked

An unfavorable aspect of our timber situation is the fact that one-quarter of our commercial land, or 114 million acres, is nonstocked or poorly stocked with trees. Another 28 percent of our commercial area is from 40 percent to 70 percent stocked. Altogether a big part of our wood growing factory is on a slow production schedule.

(See pages 34-35 and Fact Sheet No. 11)

Local Notes:

SAWTIMBER VOLUME



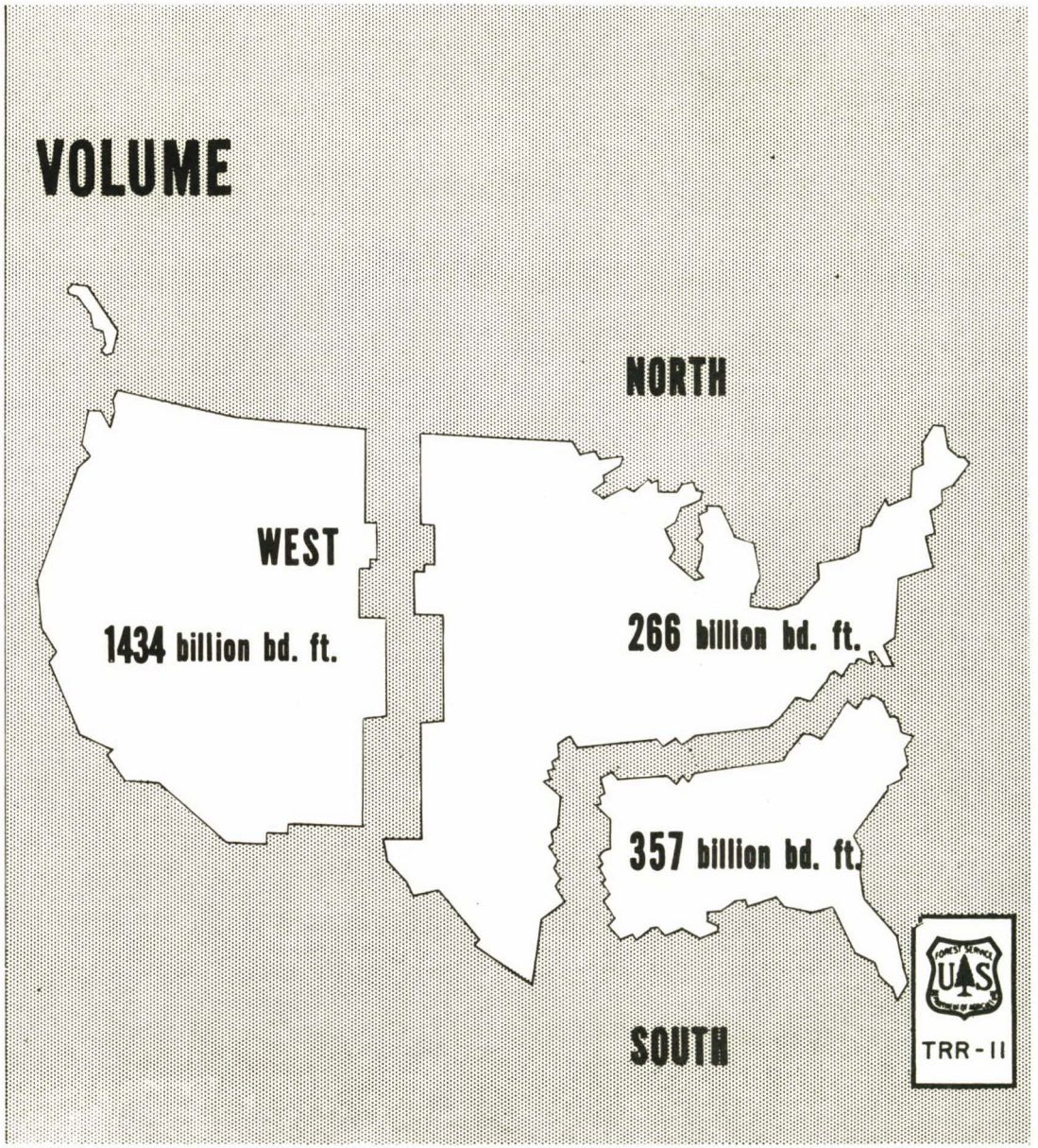


Chart TRR - 11, Sawtimber Volume

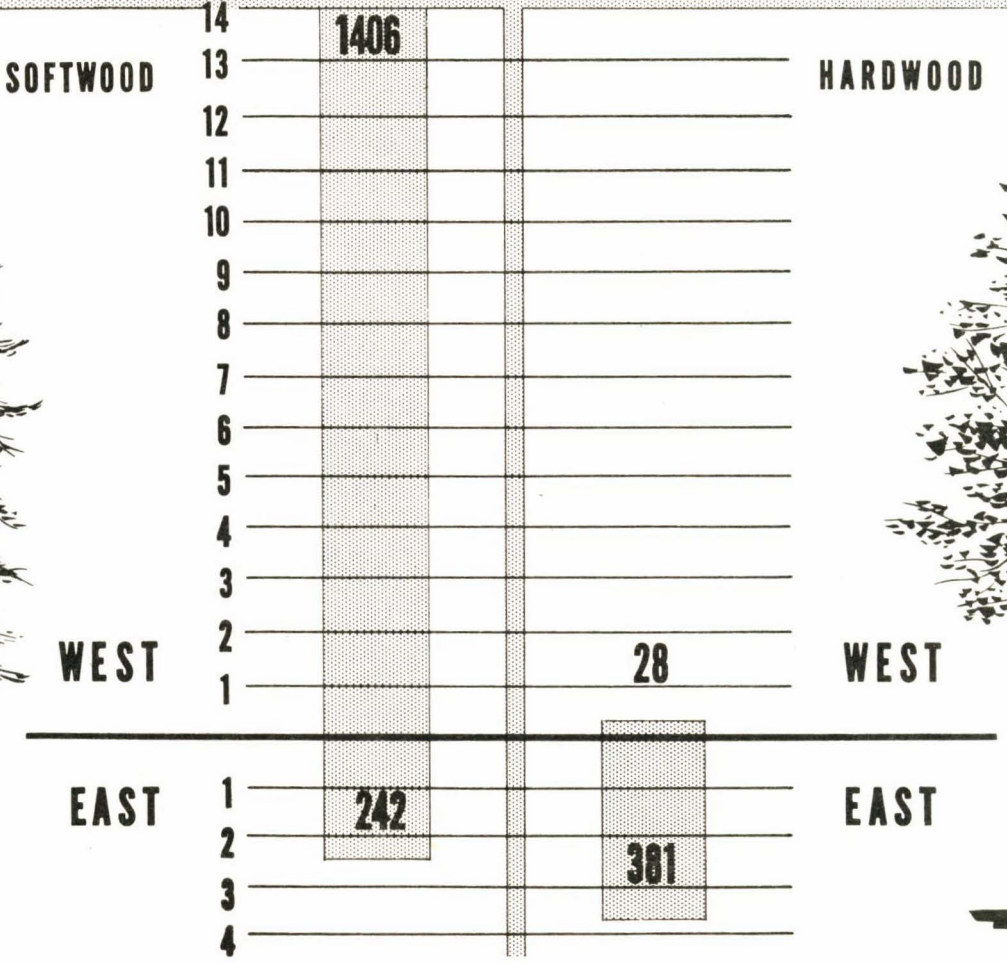
Do you recall Chart No. 6 which shows 75 percent of the commercial forest land as located in the East? Well, when we consider the amount of our sawtimber, almost the reverse is true -- 70 percent of it is in the West -- 30 percent in the East.

The great bulk of sawtimber (trees big enough to make lumber, veneer, plywood, cooperage, and many other products) in the West is in the old-growth or virgin stands remaining there. To the extent that our commercial timber lands are put under good forest management, the standing volume of sawtimber in the West would be reduced somewhat and the volume in the East raised.

(See pages 37-38 and Fact Sheet No. 1)

Local Notes:

SAWTIMBER VOLUME — 2,057 billion board feet



TRR-12

Chart TRR - 12, Sawtimber Volume - 2,057 Billion Board Feet

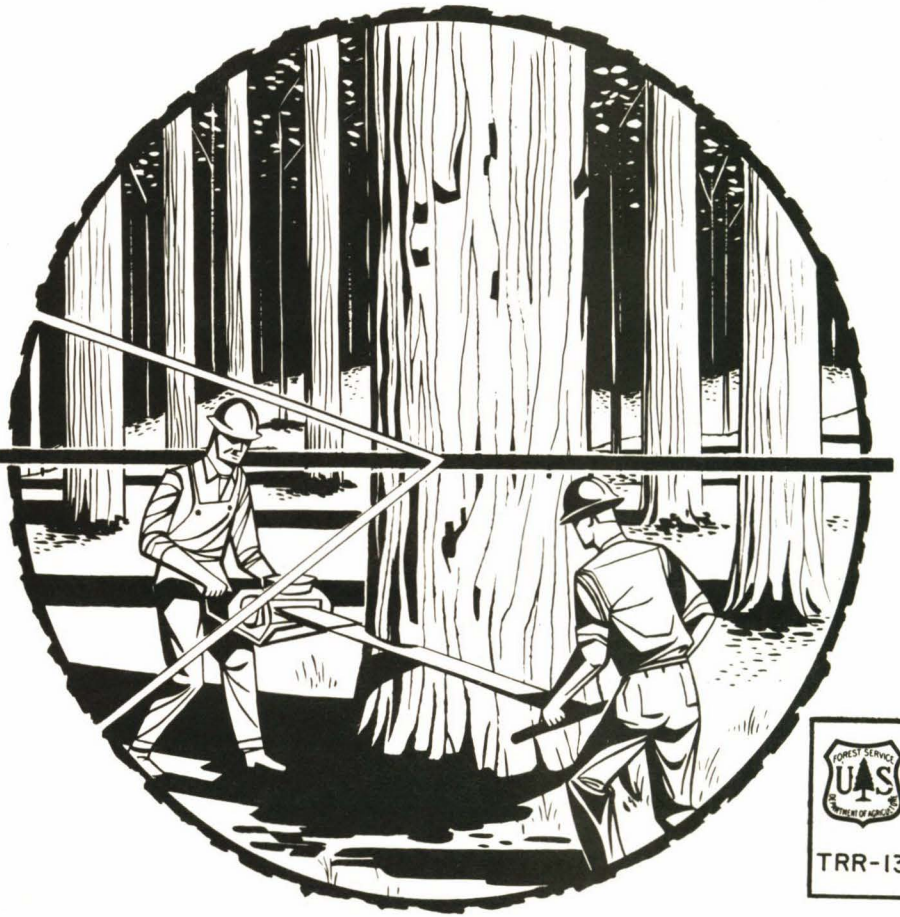
What kind of sawtimber do we have? Fortunately, mostly softwoods because that is the kind Americans cut and use most. Because of old-growth stands, most of the softwood sawtimber is in the West. The reverse is true of hardwoods -- most of them are in the East.

(See pages 41-45 and Fact Sheet No. 1)

Local Notes:

OWNERSHIP OF SAWTIMBER

FEDERAL	44%
STATE & LOCAL	4%
FARM	15%
FOREST INDUSTRIES & OTHER PRIVATE	37%



TRR-13

Chart TRR - 13, Ownership of Sawtimber

The ownership of sawtimber is considerably different from the ownership of commercial forest land, as shown on previous charts.

The Federal Government owns 44 percent of the sawtimber, most of which is on the western national forests where so much old-growth timber remains. The forest industries own another 37 percent.

Previous charts show that forest land in farm ownerships amounts to 34 percent of all commercial forest area, more than in any other type of ownership. But look at this chart, which shows the sawtimber in farm ownership as amounting to only 15 percent of the total. This fact is indicative of the poor condition of forest lands in farm ownership.

(See pages 41-42 and Fact Sheet No 1)

Local Notes:

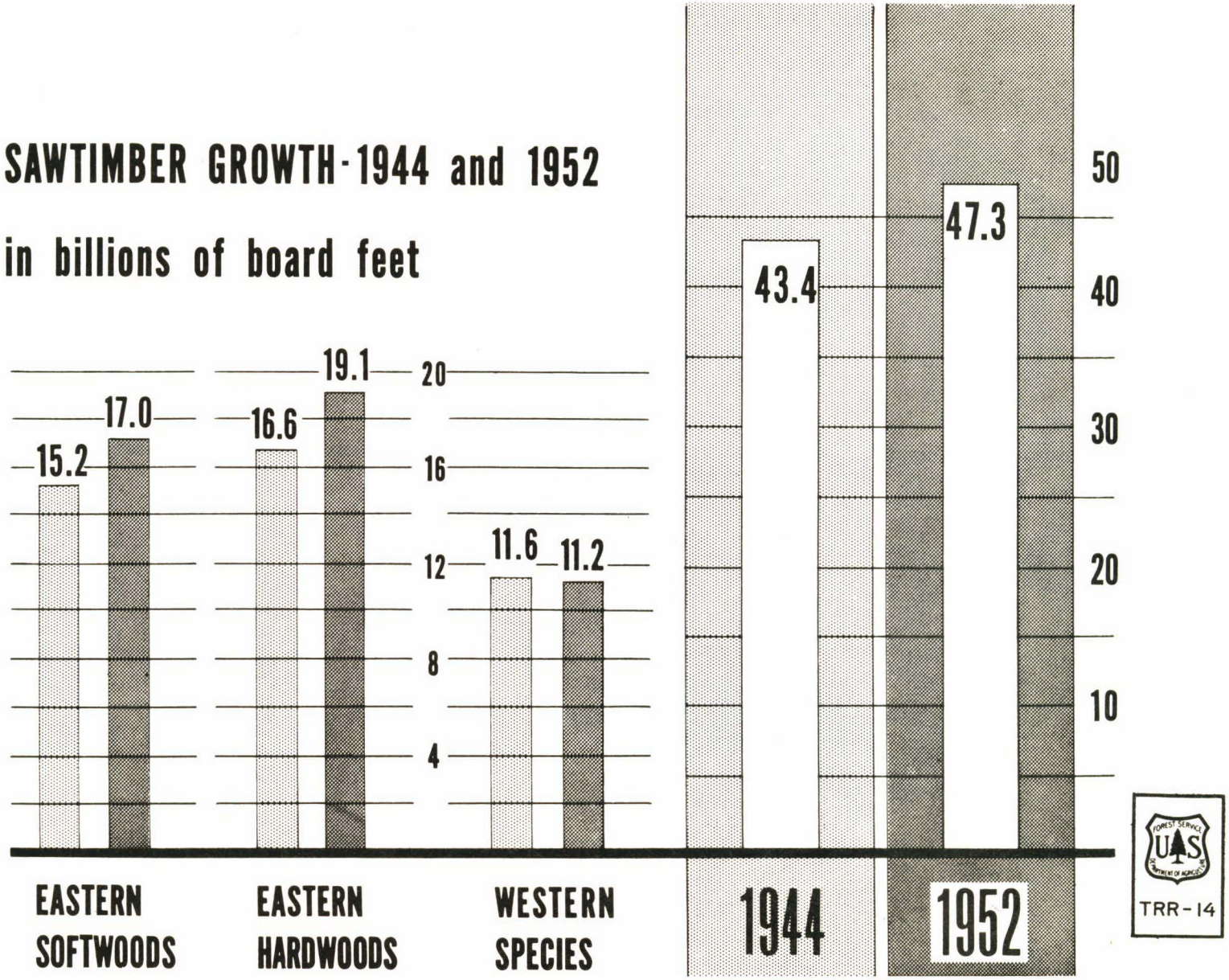

SAWTIMBER GROWTH - 1944 and 1952
in billions of board feet
15.2
17.0
16.6
19.1
11.6
11.2
43.4
47.3
20
16
12
8
4
50
40
30
20
10
EASTERN SOFTWOODS
EASTERN HARDWOODS
WESTERN SPECIES
1944
1952
TRR-14

Chart TRR - 14, Sawtimber Growth - 1944 and 1952 in Billions of Board Feet

One of the fortunate things about our timber situation is that in 1952 annual growth of sawtimber was almost 4 billion board feet greater than in 1944. Of course, this includes both softwoods and hardwoods, with the greatest increase occurring in the eastern hardwoods. However, eastern softwoods did show a substantial increase over 1944.

Western species, mostly softwoods, in 1952 showed a decrease of less than one-half billion board feet of growth between 1944 and 1952. This is not a really significant factor in our timber situation, since most of the softwoods in the West are still in old-growth or virgin stands. Growth there will increase to the extent that old-growth stands are converted into young, healthy stands through careful harvesting of the mature timber.

(See pages 45-48 and Fact Sheet No. 12)

Local Notes:

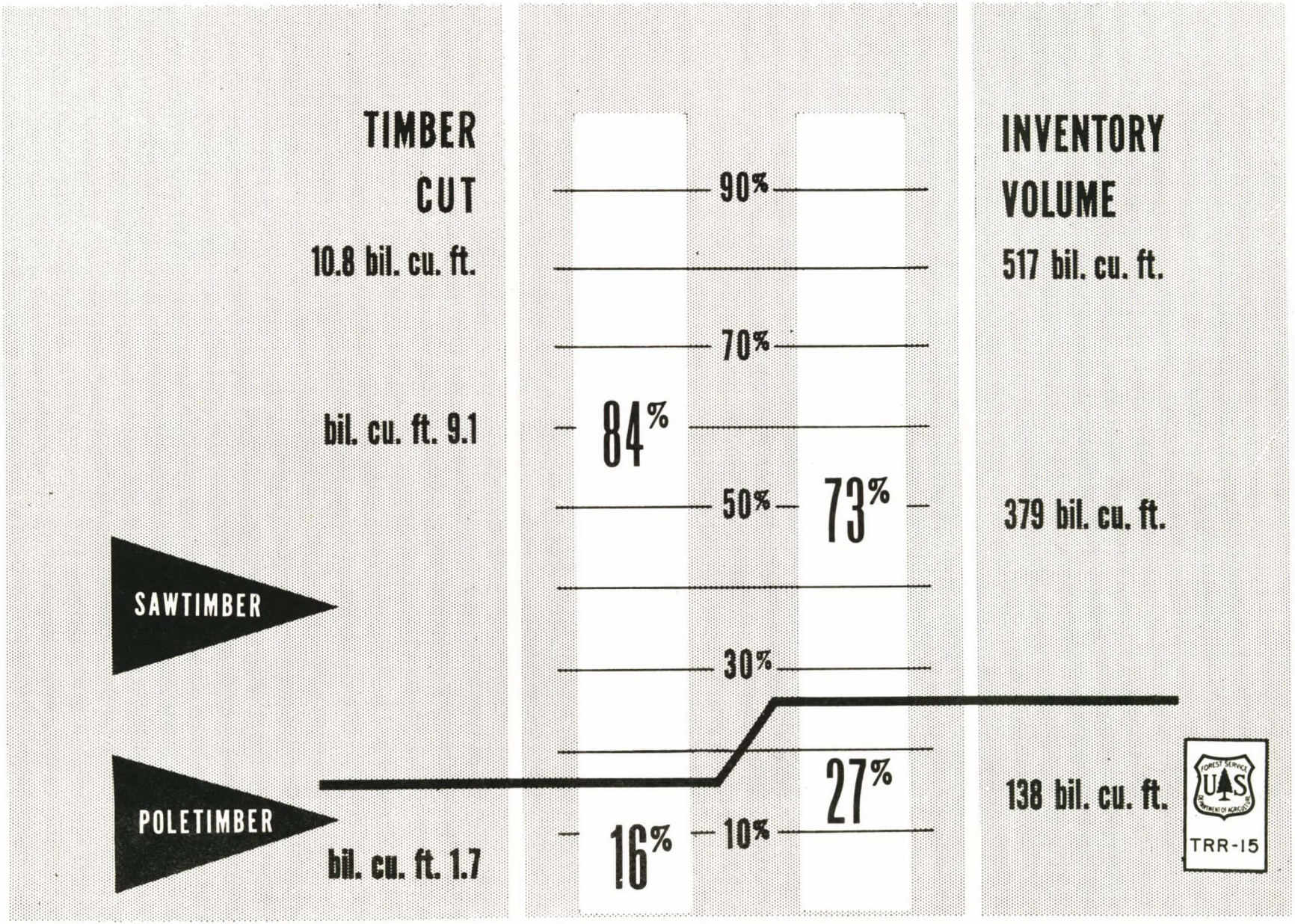

TIMBER CUT
10.8 bil. cu. ft.
bil. cu. ft. 9.1
bil. cu. ft. 1.7
SAWTIMBER
POLETIMBER
90%
70%
50%
30%
10%
84%
16%
73%
27%
INVENTORY VOLUME
517 bil. cu. ft.
379 bil. cu. ft.
138 bil. cu. ft.
FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE
TRR-15

Chart TRR - 15, Timber Cut - Inventory Volume, Sawtimber and Poletimber

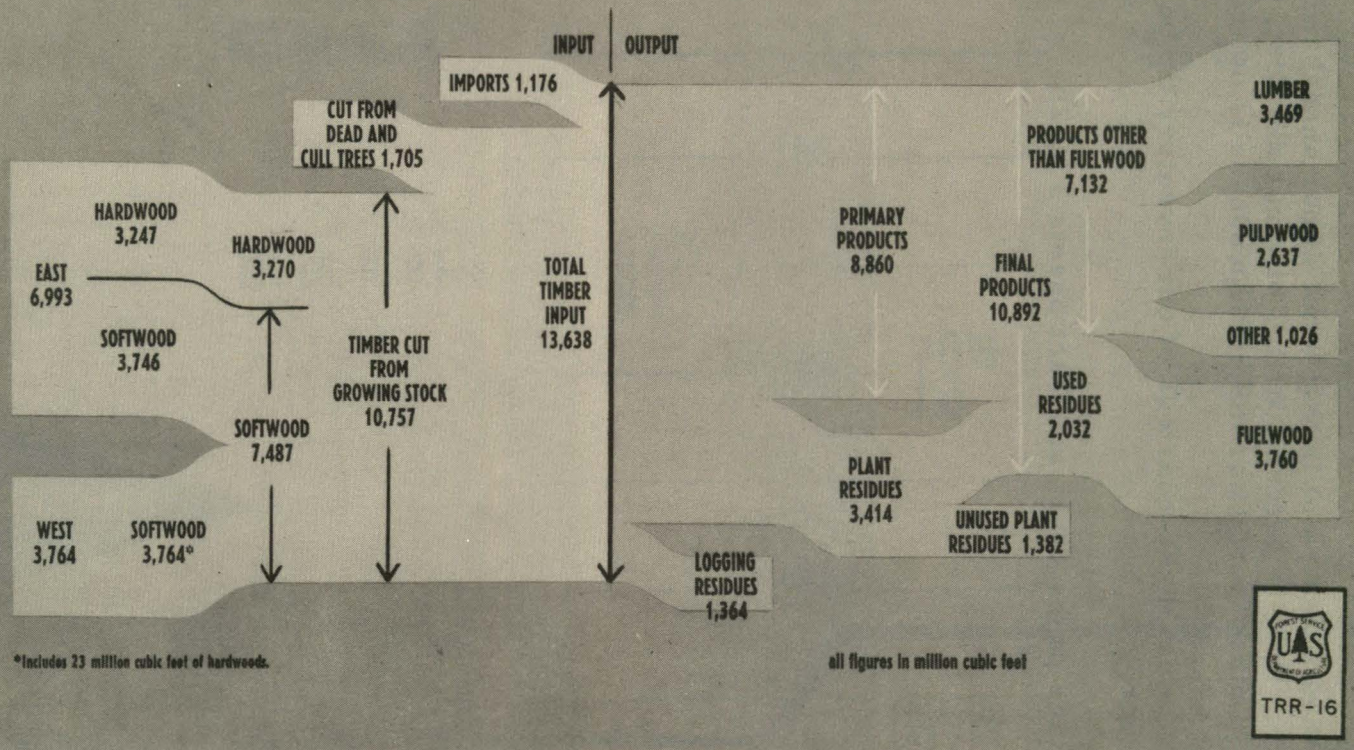
Here the significant point is that most of our annual timber cut comes from sawtimber. Only 16 percent, or 1.7 billion cubic feet, is cut from poletimber. In other words our major dependence is on trees of larger sizes.

Note that almost three-quarters of our inventory timber volume is made up of sawtimber.

(See pages 49-52 and Fact Sheets 3 & 12)

Local Notes:

INPUT AND OUTPUT IN THE TIMBER ECONOMY, 1952



*Includes 23 million cubic feet of hardwoods.

all figures in million cubic feet

TRR-16

Chart TRR - 16, Input and Output in the Timber Economy, 1952

Here is a flow chart which, when read from left to right, shows in millions of cubic feet the amount of timber cut from live trees, the imports, and the timber cut from dead and cull trees. All of these added together show a total timber input of 13.6 billion cubic feet for the year 1952. Nearly 7 billion cubic feet was cut from living trees in the East and about 3.8 billion was cut from such timber in the West.

Over 7 billion cubic feet or 52 percent of the total input of timber went into products other than fuelwood. An additional 3.76 billion cubic feet or 29 percent is used for fuel.

Take a close look at the lower segments on the right half of this chart. **Unused** residues from both the woods and the plants totaled 2.7 billion cubic feet for 1952. This is about one-quarter of the total live timber cut in that year.

About half of our fuelwood comes from plant residues.

(See page 51 and Fact Sheets 8 & 9)

Local Notes:

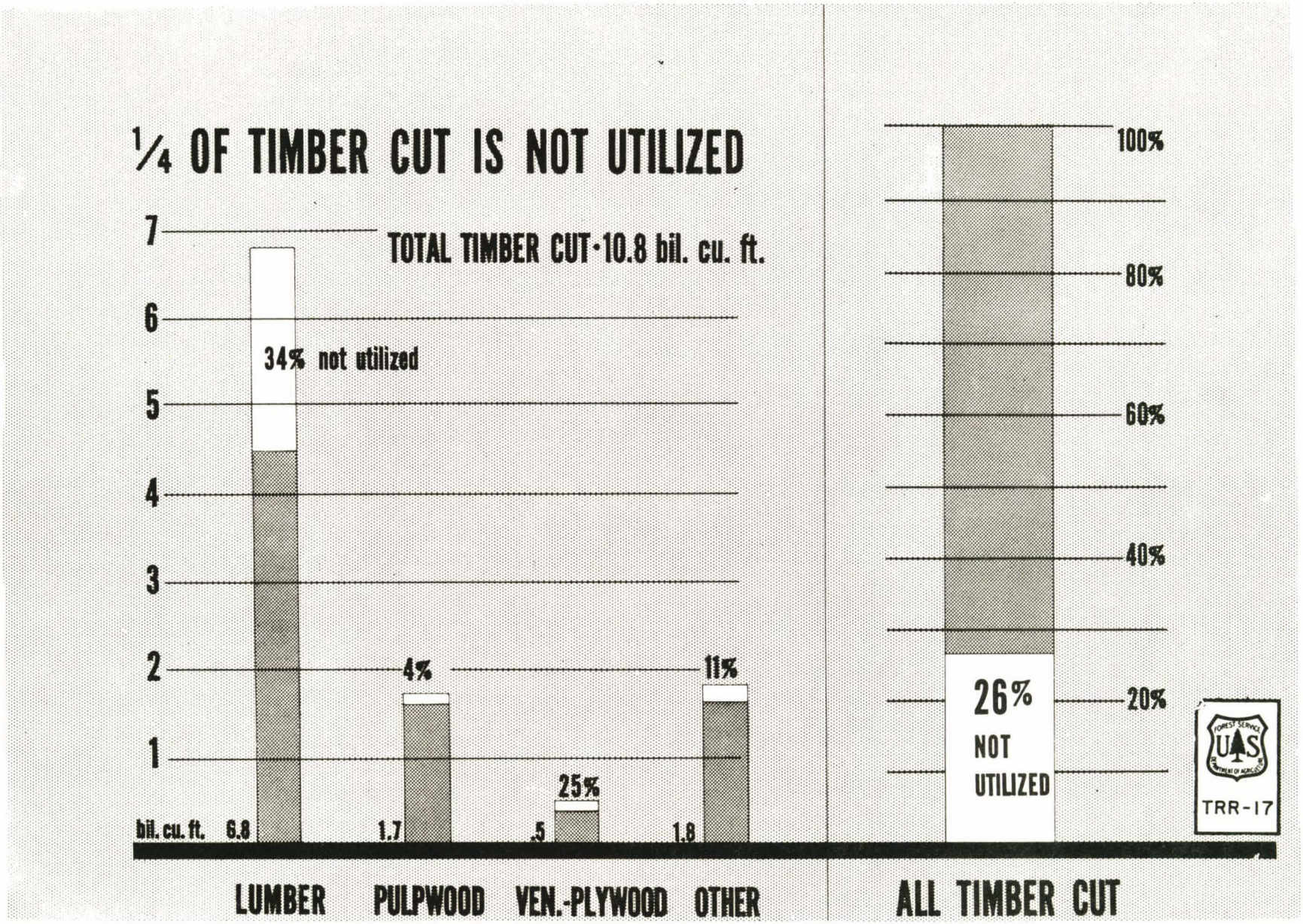

¼ OF TIMBER CUT IS NOT UTILIZED
TOTAL TIMBER CUT·10.8 bil. cu. ft.
7
6
5
4
3
2
1
34% not utilized
4%
11%
25%
bil. cu. ft. 6.8
1.7
.5
1.8
LUMBER
PULPWOOD
VEN.-PLYWOOD
OTHER
100%
80%
60%
40%
20%
26%
NOT
UTILIZED
ALL TIMBER CUT
FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE
TRR-17

Chart TRR - 17, 1/4 of Timber Cut is Not Utilized

We do not use all of the timber we cut. The amount not used for any purpose was one-quarter of the total amount cut from live timber in 1952. Most of the unused wood comes from the timber cut for lumber. Lumber operations are therefore the most promising source of residues as raw material for new products or expanded production of existing ones that can be made from residues.

Utilization is far better in the production of pulpwood. For timber cut for pulpwood the chart shows only 4 percent not utilized. That refers to logging residues only. Plant losses from storage, debarking, etc., amount to 7 1/2 percent of the pulpwood round wood volume. They are, however, used as fuel. Other losses of pulpwood occur in the pulping processes but are largely used for fuel or by-products. Lately there has been much progress in more efficient use of wood. Even more will be accomplished because reduction of waste is one effective way to meet increased needs for timber products.

There is considerable waste also in timber cut for veneer and plywood. For timber cut for other purposes the unused portion is not so great.

Reduction of unused residues is one of the greatest challenges facing us in our attempts to improve our timber situation. Use of more residues would make the timber we cut go farther and can be the source of new products.

(See pages 52-54 and Fact Sheet No. 8)

Local Notes:

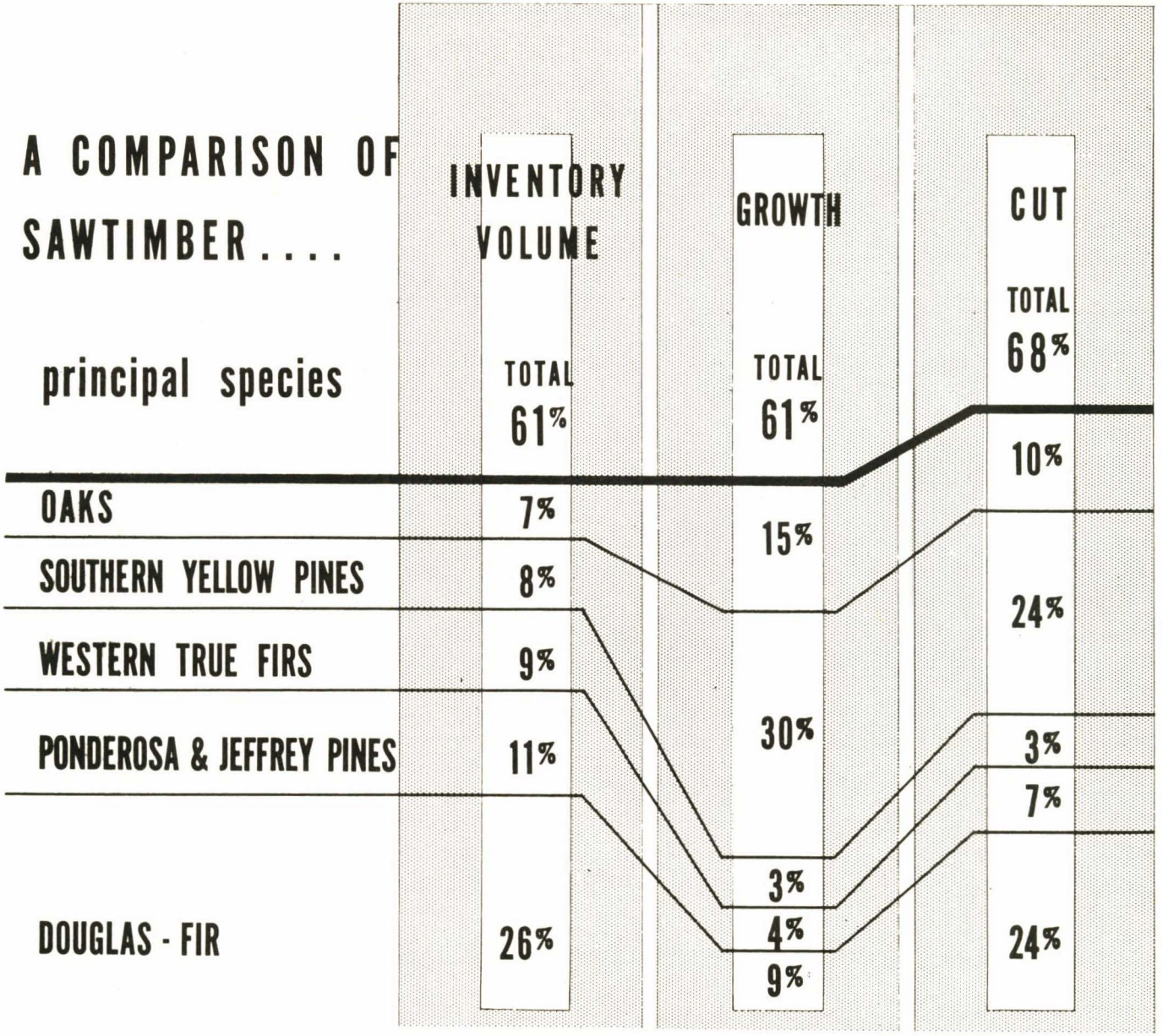

A COMPARISON OF SAWTIMBER....
principal species
INVENTORY VOLUME
GROWTH
CUT
TOTAL 61%
TOTAL 61%
TOTAL 68%
OAKS
SOUTHERN YELLOW PINES
WESTERN TRUE FIRS
PONDEROSA & JEFFREY PINES
DOUGLAS - FIR
7%
8%
9%
11%
26%
15%
30%
3%
4%
9%
10%
24%
3%
7%
24%
TRR-18

Chart TRR - 18, A Comparison of Sawtimber -- Inventory - Growth - Cut

We are heavily dependent on relatively few species. More than two-thirds of the timber cut in 1952 came from five species groups. These five groups accounted for 61 percent of the total net growth and also 61 percent of the inventory of standing timber. Any major threat to these species would result in considerable change in present patterns of use.

A number of interesting details can be observed from this chart. For example, the southern pines and Douglas fir together accounted for nearly half of the total cut of sawtimber in 1952. They also accounted for 39 percent of the growth and 34 percent of the inventory.

(See pages 54-55 and Fact Sheets 3 & 12)

Local Notes:

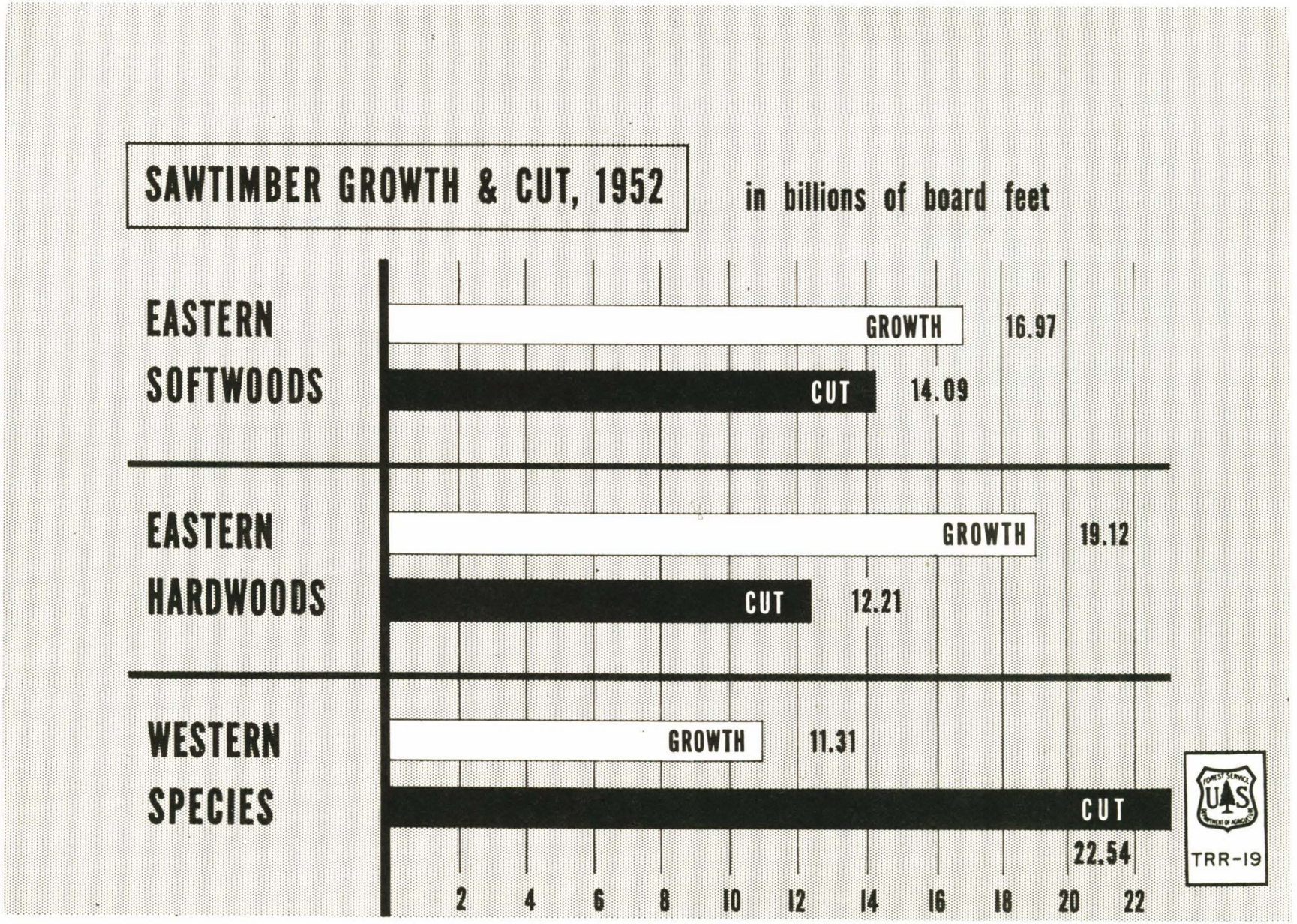

SAWTIMBER GROWTH & CUT, 1952
in billions of board feet
EASTERN SOFTWOODS
GROWTH
16.97
CUT
14.09
EASTERN HARDWOODS
GROWTH
19.12
CUT
12.21
WESTERN SPECIES
GROWTH
11.31
CUT
22.54
2
4
6
8
10
12
14
16
18
20
22
TRR-19

Chart TRR - 19, Sawtimber Growth and Cut, 1952 - in Billions of Board Feet

Here's another encouraging fact about our timber situation! In 1952 sawtimber growth exceeded cut for most eastern softwoods and hardwoods. This same relationship does not apply to western species, which are mostly softwoods. There the cut in old-growth stands is approximately double the growth. This excess of cut over growth in western species may continue for some years. Growth in the West will increase to the extent that harvest of old-growth timber is accompanied by establishment of thrifty, rapidly growing second-growth forests.

The favorable growth-cut balance in eastern softwoods is partly the result of a reduced cut which was made up by an increased cut of western old-growth timber.

(See page 50 and Fact Sheet No. 12)

Local Notes:

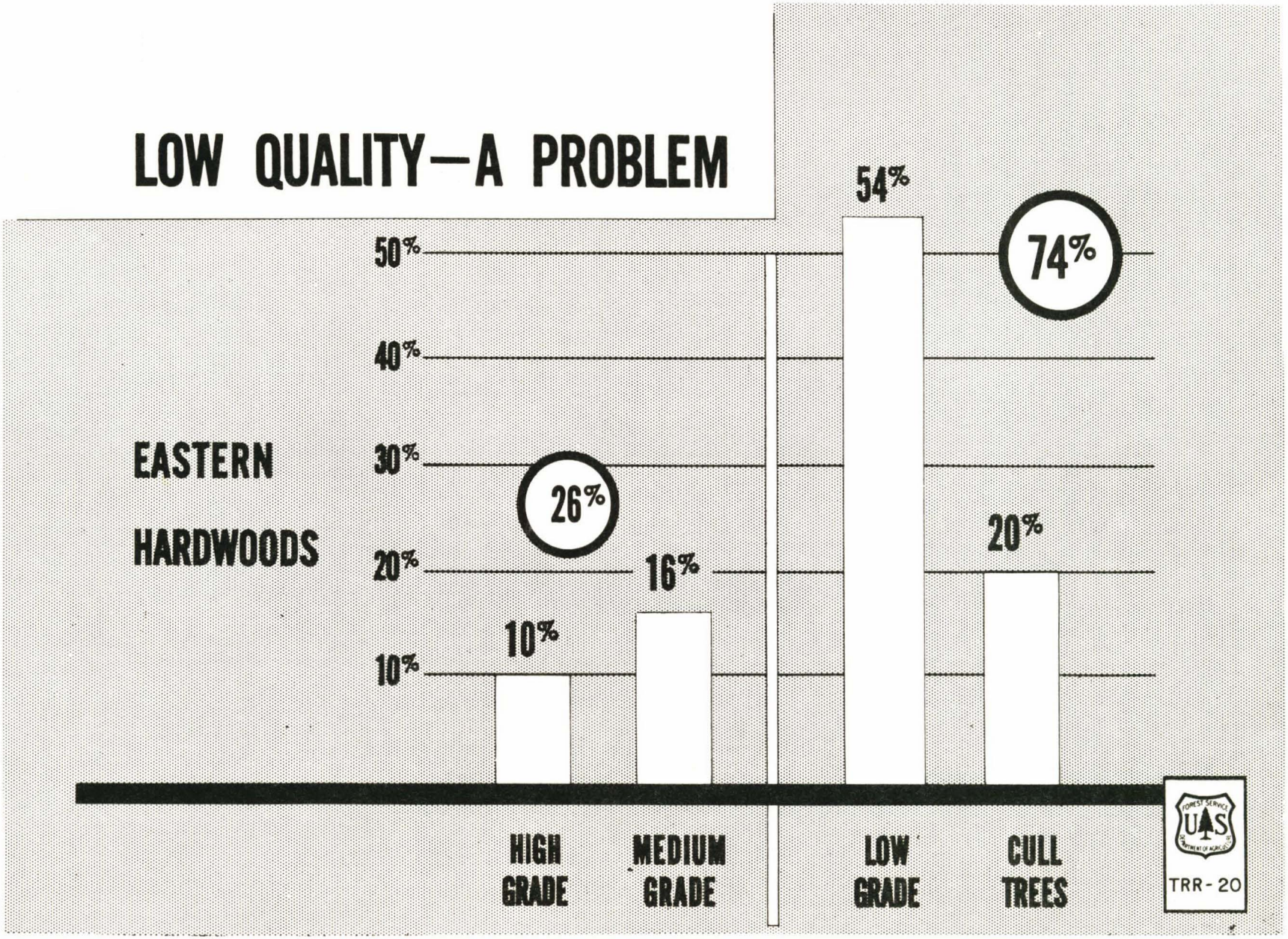

LOW QUALITY—A PROBLEM
EASTERN HARDWOODS
50%
40%
30%
20%
10%
26%
74%
10%
16%
54%
20%
HIGH GRADE
MEDIUM GRADE
LOW GRADE
CULL TREES
TRR-20

Chart TRR - 20, Low Quality - A Problem

Wood quality is falling off and may become a serious problem unless we grow more high-quality trees. For eastern hardwoods, more than one-half of the total volume is in low-grade logs. Ten percent is in high-grade logs, while about 16 percent is in medium-grade. Cull trees make up 20 percent.

In the Lake States, between 1936 and 1953, the percentage of standing timber volume that would make high-grade logs declined 40 percent.

In Mississippi, the number of big pines and other softwoods fell off between 1935 and 1948. For every 100 pines and other softwoods 20 inches in diameter in 1935, there were only 58 in 1948, a drop of 42 percent. Similar changes were found in a few other States where measurements were made at about 20-year intervals.

Research has developed many ways for overcoming the defects that cause low quality in wood. But we will continue to need large amounts of quality timber that cannot be offset entirely by technological developments in wood utilization. There just isn't any satisfactory substitute for quality in many of the products we have become accustomed to and will want and need in the future. Technology alone is not the answer. Unless owners grow quality timber in substantial quantity declining quality will become more of a problem as time goes on.

(See pages 58-61 and Fact Sheet No. 2)

Local Notes:

DESTRUCTIVE FORCES STILL REAP A BIG HARVEST

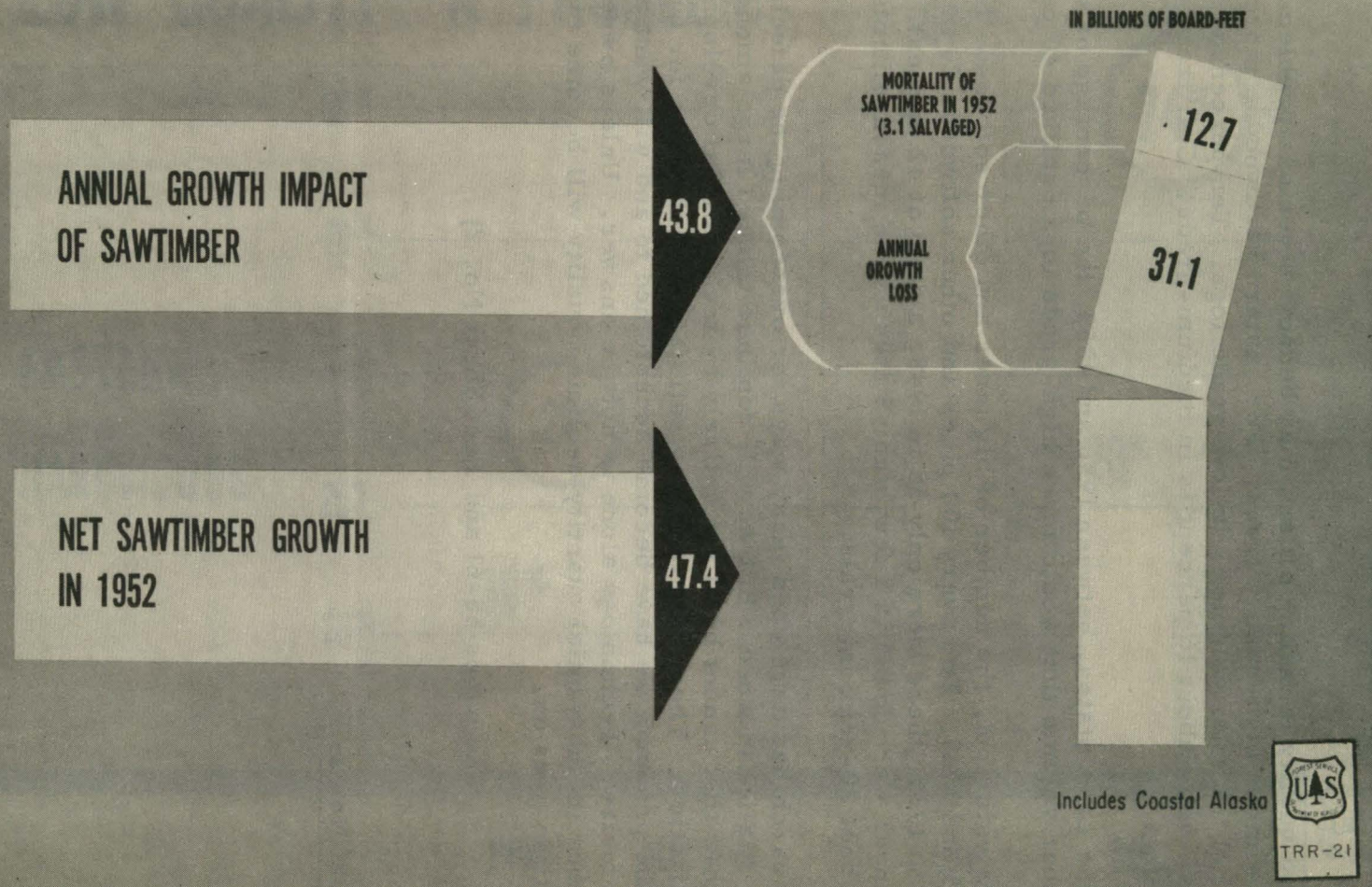


Chart TRR - 21, Destructive Forces Still Reap A Big Harvest

Destructive agents, such as insects, disease, fire, weather, and grazing animals kill outright an amount of sawtimber equivalent to one-fourth of new sawtimber growth. That is bad enough but there is an even greater growth loss. Growth loss is simply a subsequent reduction in growth that results from destructive events that may have hit a timber stand in any one year. For example, a fire occurred in 1952. It may have killed only the very small trees -- to small to be measured in the inventory or growth figures. However, the effects of that fire on growth in the area burned during subsequent years will be considerable. Disease, insect damage, and other damaging agents have similar effects. Adding mortality and growth loss together, we come up with "growth impact," a staggering total of nearly 44 billion board feet which will eventually be lost due to the destructive incidents of 1952.

We have accomplished a lot in prevention and control of forest fires. When we make the same advances in the control of other destructive agents, we will have made permanent improvements in our timber situation.

(See pages 61-64 and Fact Sheet No. 10)

Local Notes:

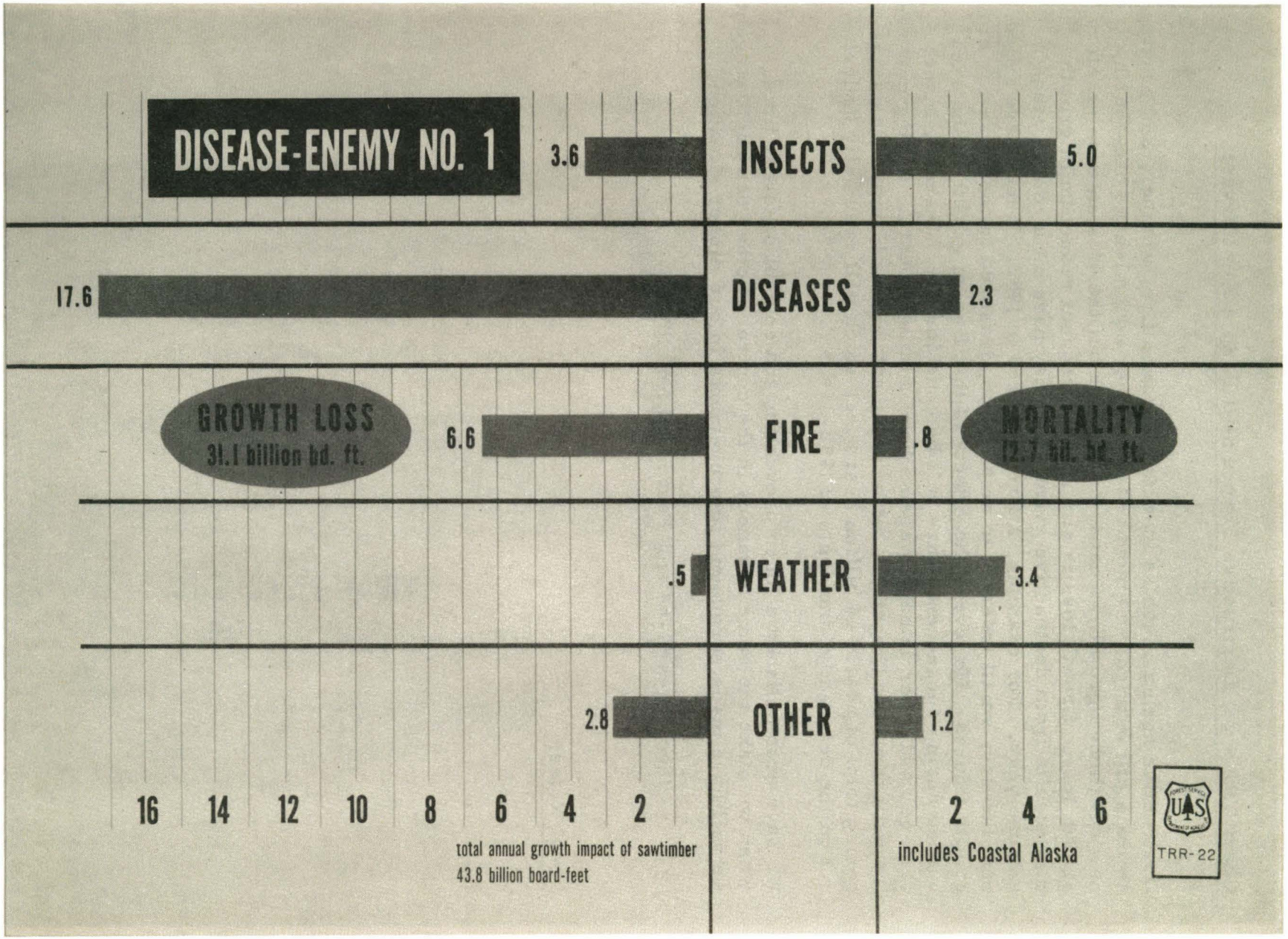

DISEASE-ENEMY NO. 1
3.6
INSECTS
5.0
17.6
DISEASES
2.3
GROWTH LOSS
31.1 billion bd. ft.
6.6
FIRE
.8
MORTALITY
12.7 bil. bd. ft.
.5
WEATHER
3.4
2.8
OTHER
1.2
16 14 12 10 8 6 4 2
2 4 6
total annual growth impact of sawtimber
43.8 billion board-feet
includes Coastal Alaska
TRR-22

Chart TRR - 22, Disease, Enemy No. 1

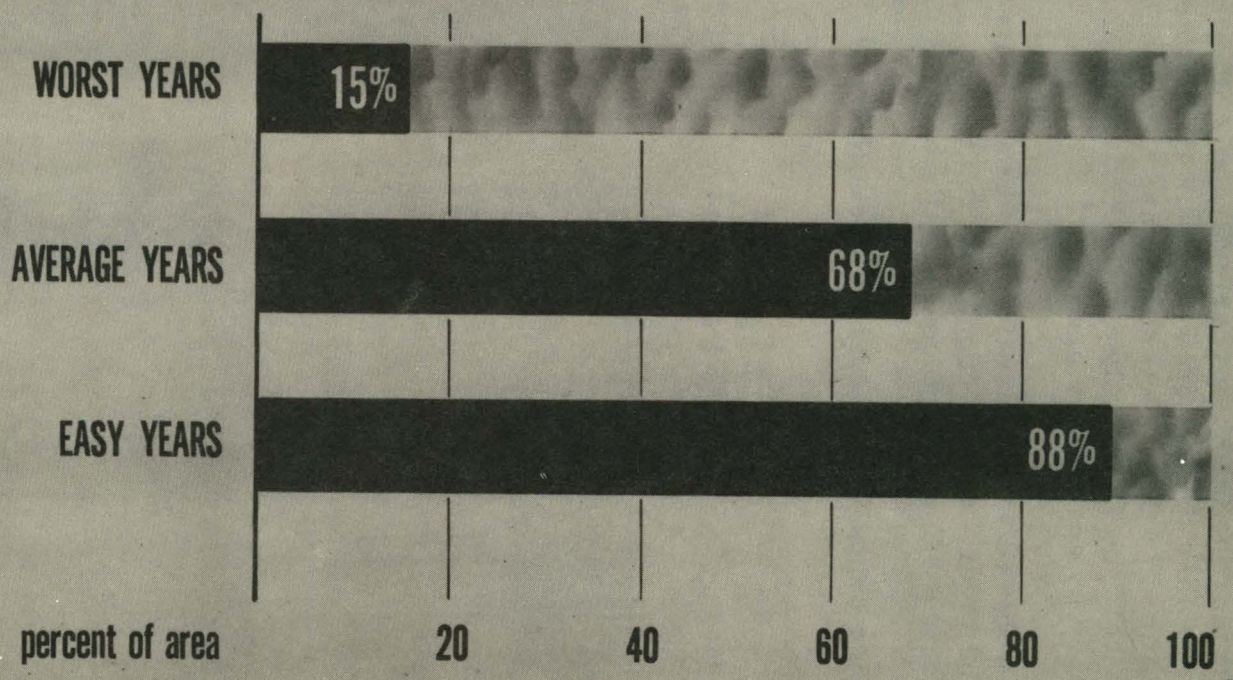
Insects kill more sawtimber yearly than any other destructive force. But when it comes to total growth impact (that's mortality plus growth loss and defined in Chart No. 21) disease is way out front. It accounts for almost half (19.9 billion board feet) of the total annual growth impact on sawtimber by destructive agents.

Fire kills relatively little sawtimber annually. Its effect on future growth is great, however, and is second only to disease. If we relax our prevention and control efforts, fire could easily become the greatest forest enemy.

(See pages 64-67 and Fact Sheet No. 10)

Local Notes:

STATUS OF PROTECTION FROM FIRE



TRR-23

Chart TRR - 23, Status of Protection From Fire

Protection from fire has a long way to go in spite of the progress mentioned under Chart No. 21. In the worst years -- that's when weather is particularly conducive to fires and there are lots of them -- only 15 percent of the total forest area is adequately protected. In average years 68 percent is adequately protected while in so-called "good" years, protection is adequate on 88 percent of the area.

(See pages 66-68 and Fact Sheet No. 10)

Local Notes:

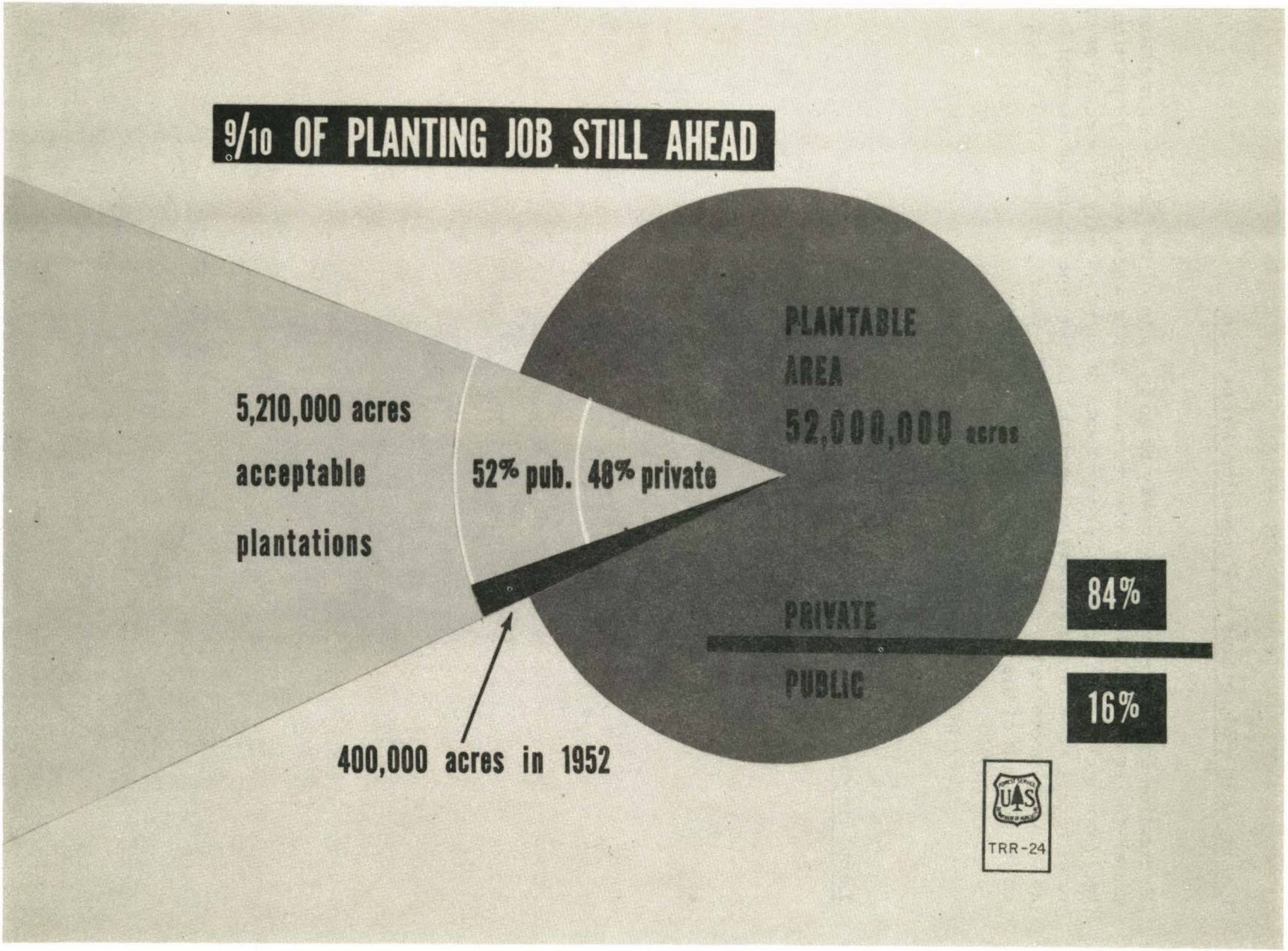

9/10 OF PLANTING JOB STILL AHEAD
5,210,000 acres
acceptable
plantations
52% pub. 48% private
PLANTABLE
AREA
52,000,000 acres
PRIVATE
84%
PUBLIC
16%
400,000 acres in 1952
TRR-24

Chart TRR - 24, 9/10 of Planting Job Still Ahead

Fifty-two million acres! That's the size of our tree planting job if 11 percent of our commercial forest land is to produce timber crops again within a reasonable time.

Over 80 percent of the land needing planting is privately owned and the biggest part of the job is in the East.

We have over 5 million acres of acceptable plantations in the United States, divided about equally between public and private commercial forest land. In 1952 the establishment of acceptable plantations amounted to 400,000 acres. Planting activity has increased rapidly and in 1957 we planted one million acres. Probably 75 to 80 percent of this area will turn out to be acceptable.

Planting the 52 million acres of unproductive forest land is a big job and a big opportunity if these acres are ever to produce the timber they can very well grow. If all this land were planted to trees, it would eventually add about 8 billion board feet annually to timber supplies.

(See pages 68-70 and Fact Sheet No. 11)

Local Notes:

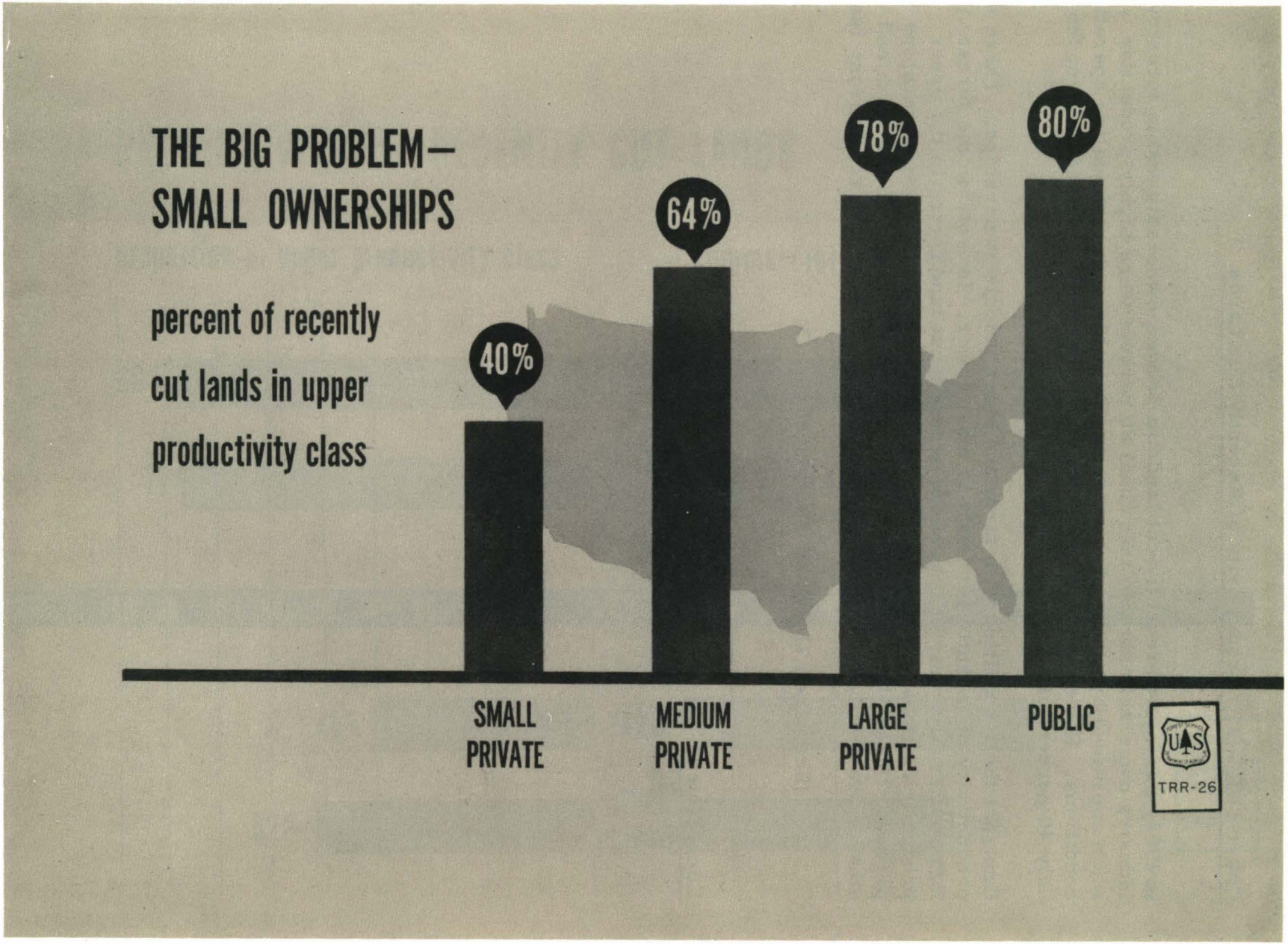

THE BIG PROBLEM—
SMALL OWNERSHIPS
percent of recently
cut lands in upper
productivity class
40%
64%
78%
80%
SMALL
PRIVATE
MEDIUM
PRIVATE
LARGE
PRIVATE
PUBLIC
TRR-26

Chart TRR - 26, The Big Problem -- Small Ownerships

Small forests, under 5,000 acres each, are many, about 4 1/2 million altogether. Their total area is 265 million acres, 55 percent of all commercial forest land. About half of the small forest land owners have less than 30 acres each -- few own more than 100 acres. On the whole, these small holdings are in the poorest condition of any lands for producing continuous timber crops.

The South has 2 million small ownerships making up 128 million acres. Of the recently cut land in these ownerships, only 34 percent is as productive as might reasonably be expected. That's 7 percent below the national average for similar lands.

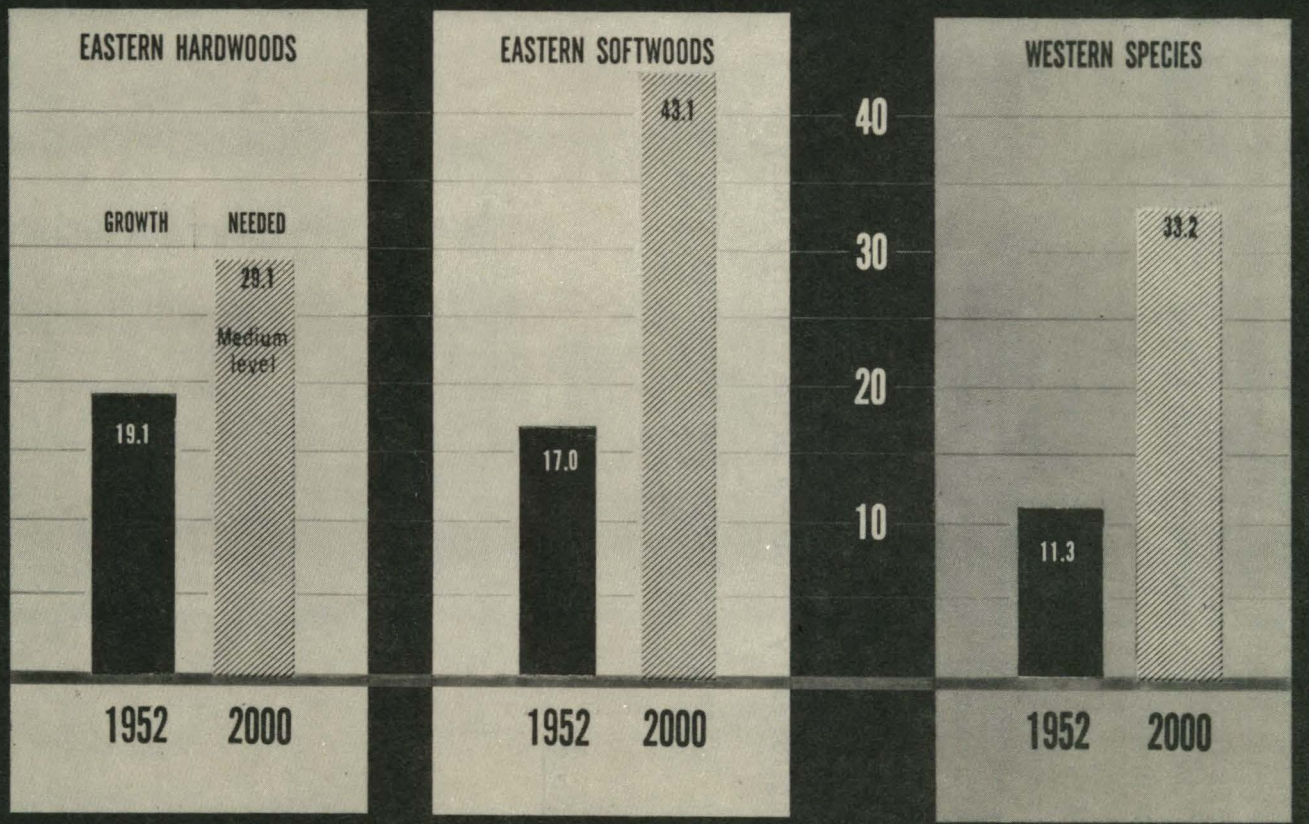
Small ownerships will have to play a prominent role in meeting future timber needs. Improving the condition of these lands so that they will make their full contribution to meeting future needs is one of the most pressing forestry problems in the country today.

(See pages 79-80 and Fact Sheet No. 7)

Local Notes:

SAWTIMBER GROWTH—1952 and needed in 2000

Figures are billions of board-feet



TRR-27

Chart TRR - 27, Sawtimber Growth -- 1952 and Needed in 2000

Here is needed sawtimber growth at the medium level in the year 2000 compared to actual growth in 1952 for eastern hardwoods, eastern softwoods and western species. For all species combined, needed growth to meet medium timber demands would be 105 billion board feet or an increase of 122 percent over 1952 levels.

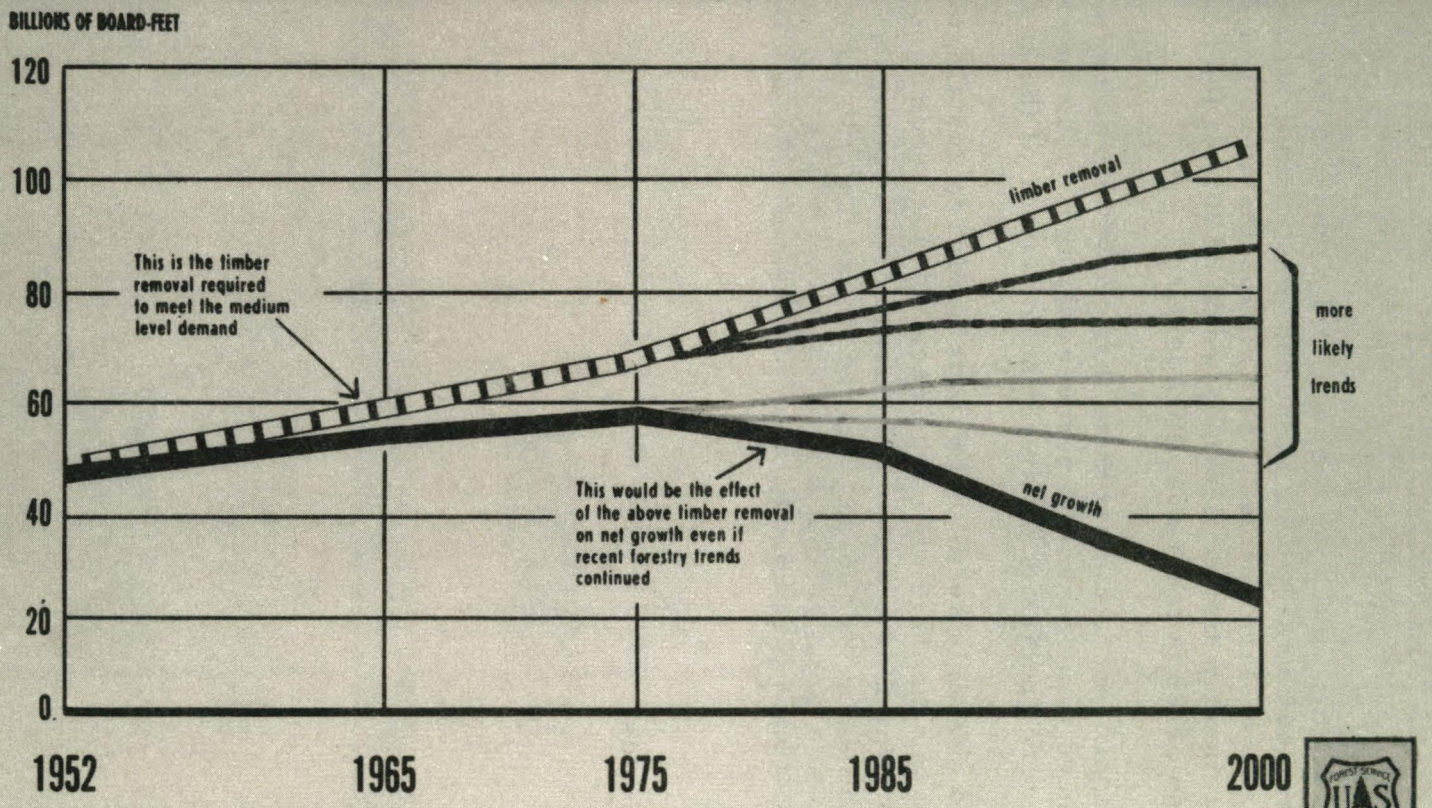
Most significant is the estimate that growth of eastern softwood sawtimber would need to increase 154 percent over 1952. The percentage increase for western species is greater than for either of the eastern species groups.

It would certainly seem that growth needed to sustain medium timber demands by 2000 is attainable when it is recalled that needed growth is about the same amount as would be grown if the commercial forest lands were managed in about the same way on the average as are the better managed lands today.

(See pages 92-93)

Local Notes:

Trends of SAWTIMBER removal and growth under medium level assumptions



TRR-28

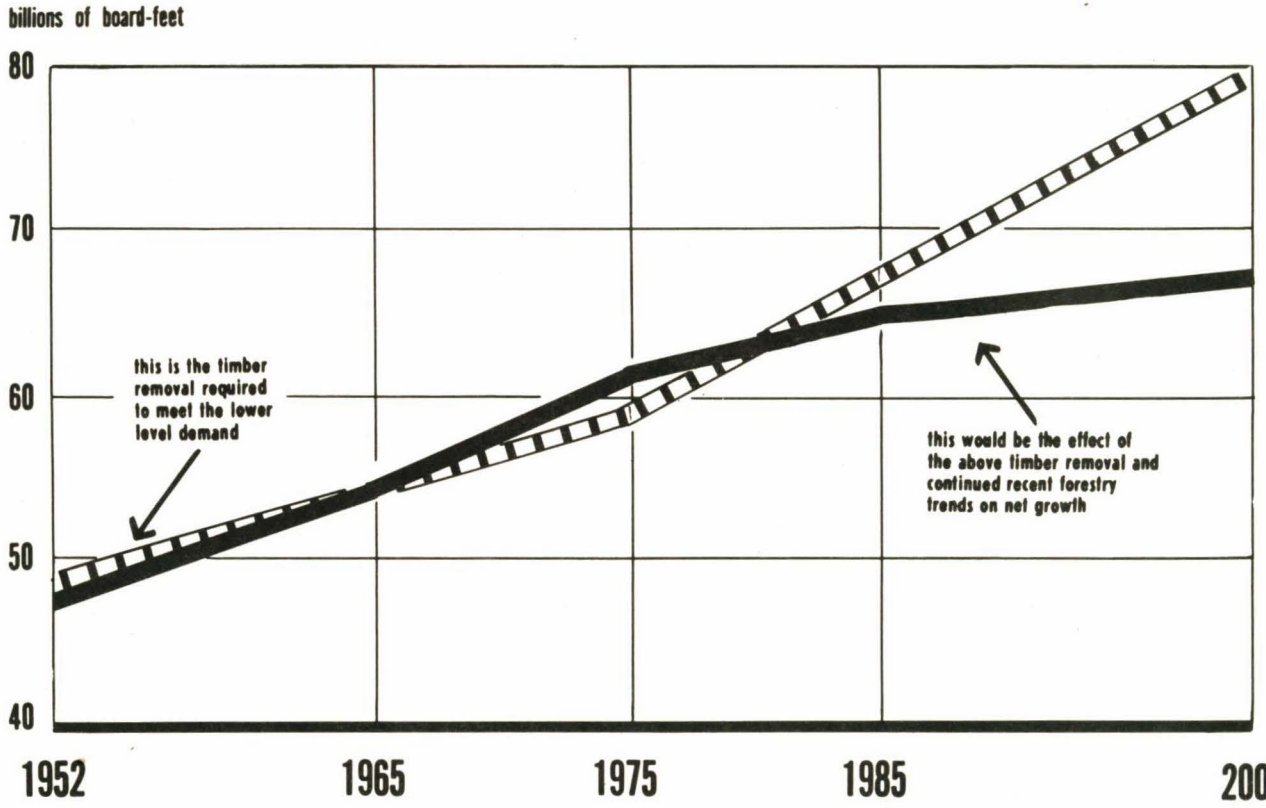
Chart TRR - 28, Trends of Sawtimber Removal and Growth Under Medium Level Assumptions

The broken top line is timber removal required to meet the medium level sawtimber demand. The solid line shows the effect of this timber removal on net growth even if present forestry trends continue. Actually the four narrow lines are more likely trends because inadequate growth will reduce removal below the amount needed for projected demands. Such reduced removal will result in modifying growth decline. In addition higher prices because of lesser supply will stimulate forestry and further help to modify the growth decline. Nevertheless, carrying these basic projection of removal and growth through 2000 indicates that medium timber demands will not be met unless forestry efforts are intensified and expanded much more rapidly than has occurred during recent years.

(See pages 96-99)

Local Notes:

SAWTIMBER growth and removal under lower level demand



TRR-29

Chart TRR - 29, Sawtimber Growth and Removal Under Lower Level Demand

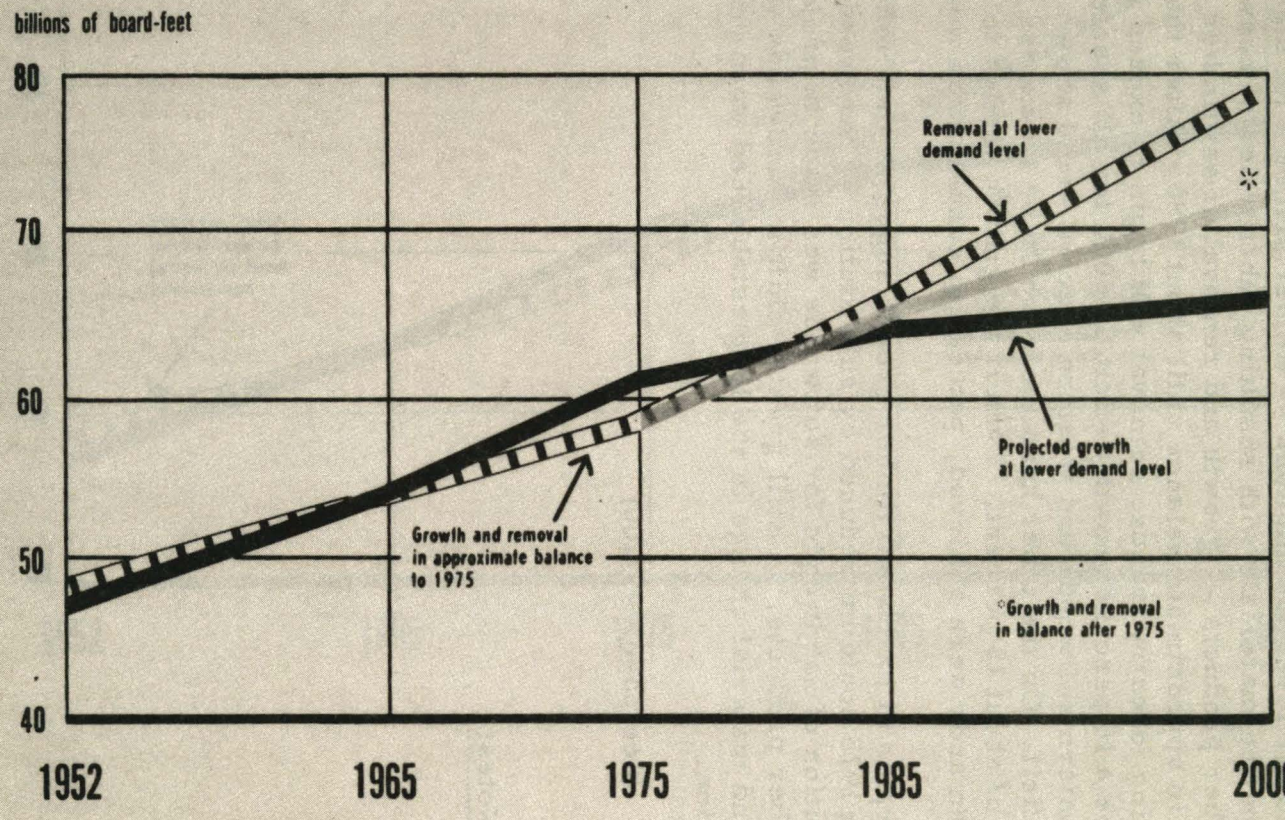
Under lower level assumptions -- timber prices a lot higher than those of competing materials with resulting substitution of nonwood materials for timber products -- growth and removal of sawtimber at that level will be in approximate balance until about 1980. After that even under continuing forestry trends, removal will begin to exceed growth. There would be a 16 percent growth deficit by 2000 for all species combined. Both eastern softwoods and western species would show about a 30 percent deficit. On the other hand there would be an excess of hardwood growth of about 15 percent. Even if the growth needed to sustain lower level demands were achieved, per capita consumption would decline.

The surplus of hardwood timber growth suggests that softwood deficits through 1975 could be reduced by substitution of hardwoods. Considerable substitution of hardwoods for softwoods was made in projecting demands for timber products. A still greater shift to hardwoods would require a rapid and material change in the long established wood-using habits of the Nation.

(See pages 99-100)

Local Notes:

SAWTIMBER REMOVAL with removal and growth in balance



TRR-30

Chart TRR - 30, Sawtimber Removal with Removal and Growth in Balance

The middle broken line assumes that starting in 1975 timber removal and growth would be brought into balance by 1985. This assumes further that hardwoods would fill about 30 percent of total timber demand in 2000 as against 20 percent in 1952. It also assumes that all excess hardwood growth would be used and that removal of softwood sawtimber would not exceed its growth.

The increased use of hardwoods needed to attain this balance exceeds any trends now in sight. Removal of softwoods needed to reach a balance falls below the removal necessary to supply lower projected demands for these species. Moreover, sustained timber removal for all species combined falls below the total removal needed to supply lower projected demands.

If the American people continue to accelerate forestry no faster than in recent years, are willing to use more hardwoods as substitutes for softwoods, and are willing to get along with 15 percent less sawtimber per person than they are now doing, the United States could keep timber removal and growth in balance after 1975.

(See pages 99-100)

Local Notes:

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